August, 1934

ELECTRICAL WEST

Human Understanding

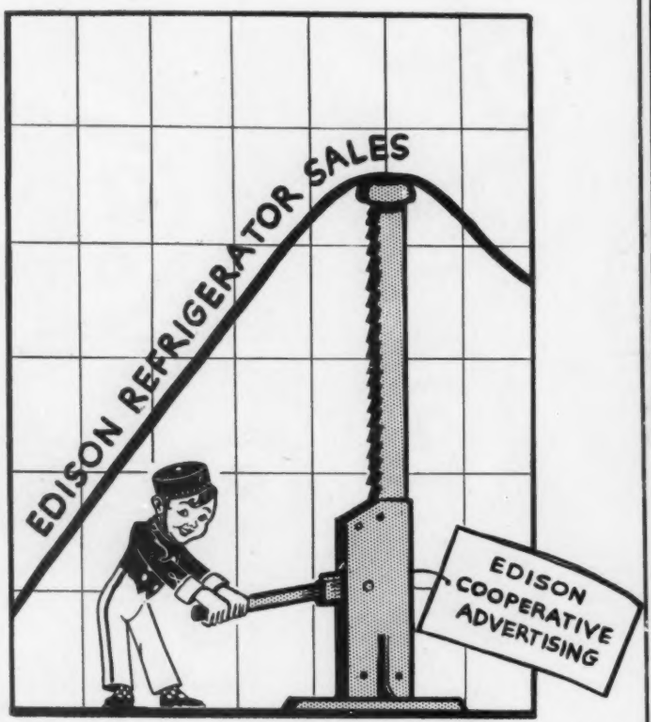
"With public sentiment nothing can fail; without it nothing can succeed; consequently he who molds public sentiment goes deeper than he who enacts statutes or pronounces decisions."

—Abraham Lincoln

McGraw-Hill Company of California
Twenty-Five Cents Per Copy

Edison Swings Into Its Greatest Selling Drive

Jacking Up Refrigerator Sales with Powerful Peak-Season Advertising



In support of electrical appliance dealers, Edison has just launched the greatest cooperative sales campaign in its history.

The objective is a new record in electric refrigerator sales in Southern California.

Timed for the height of the season, and coming in a year of rapid business expansion, its beneficial results for merchants in Edison territory should be outstanding.

Intensive advertising will emphasize the exceptional opportunities afforded home-owners to obtain this outstanding electrical convenience this year.

It is significant evidence that the Southern California Edison Company will continue to back merchants with a consistently aggressive program to insure a steady, profitable volume of business.

Edison

Southern California Edison Company Ltd.

ELECTRICAL WEST (with which is consolidated The Journal of Electricity, August, 1934, Vol. 73, No. 2. Published monthly by the McGraw-Hill Company of California, 883 Mission St., San Francisco, Calif. Entered as second class matter at the post office at San Francisco under the Act of March 3, 1879. Printed in U.S.A. Subscription rate in U.S. and U.S. possessions, $2 per year; Canada, $2.50 including duty; all other countries $3 gold (thirteen shilling). Single copy, 25c. Copyright 1934. McGraw-Hill Company of California.

the New ELECTRICAL WEST

Volume 73 — No. 2
for August, 1934

The Editors Think Out Loud

Harris J. Ryan

Extinguished is the vital spark that energized Harris J. Ryan into a kindly, quiet, genteel and sympathetic educator, as well as a brilliant genius of research. Beloved by those to whom he taught the principles of electrical engineering in his many years at Stanford University, he leaves behind indelible marks upon the pages of the industry. Throughout the world are engineers who are better men because of contact with him and his teachings. And throughout the world are electrical machines and high tension lines that function better in their service to industry and the public because of his research. And if these were not enough, in the hills back of the Stanford campus rears the huge rugged building that stands as a monument to his genius in the field of research, the Harris J. Ryan High Tension Laboratory. For all these things he will be remembered—and missed.

▼

Out T.V.A.ing T.V.A.

In a letter to a Chicago paper recently a commentator on the Tennessee Valley Authority's appliance disposal plan makes the tart remark that if the T.V.A. starts distributing washers to the families of such low buying power as those who live in that region, it will also have to provide clothes to wash. True at the present time, no doubt, but the T.V.A. program hopes to remedy that too, according to its proponents.

The comfort that we in the West can derive from all of the T.V.A. work is that, thank heaven, those days are gone from our land. There was a time when most of our West was as much a wilderness, needed as great an impetus of government help. Now, thanks to the labors of our own pioneers, we have electricity to offer at far better rates than TVA schedules in most cases, and our people, when they do buy appliances, will not look at the class of quality offered in the low priced wares being developed for that region. Our Japanese neighbors, for that matter, can out-cheapen any appliance that T.V.A. can produce.

In fact, our salvation lies not in cheapness. It will be found only in selling up, in building up an appreciation and desire for better quality. We have too many cheap competitors in fuels and services now. Our choice should be not to descend to their level, but to raise the tastes and appetites of our customers to the better electrical way of living.

Our Westerners have clothes to wash. Let us sell them the machines to make the task easier and cleaner.

▼

Learn to Like Exams

Engineers, a group of student counselors and teachers at University High School, Oakland, were told by Prof. Baldwin M. Woods, of University of California, must learn to take examinations with equanimity. He pointed out that opportunities for employment have changed. A few years ago most engineering graduates were employed by large utilities and industrial corporations, but today more opportunities are likely to be found in government service, in teaching, in small companies, or in independent activity in small communities as salesmen or service experts for engineering appliances. Besides advising the holding of examinations even as often as once a week in school, he suggested engineers seek employment as a salesman of appliances to get good experience.

— Read

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Brighten the Corner

TODAY'S Gossip column of the Pomona, Calif., Progress-Bulletin provides this account of an incident in the day of a lighting salesman of the Southern California Edison Company:

"One of the men who sell modern lighting conveniences for the Southern California Edison Co. recently called on a certain professor in Claremont (the home of Pomona college) with the idea of interesting this professor in a new type of floor lamp.

"For two hours he wrestled verbally with the savant, using all the logic and science at his command to make the sale. But the professor remained adamant.

" 'I have plenty of light in the room', said he. 'Why see . . . even over there in that corner by the piano there is sufficient illumination for any pianist to play perfectly. If you don't believe it I'll show you.'

"And the professor seated himself at the piano, opened a hymn book and started to play.

"The salesman sat in respectful silence until the hymn was finished. Then he stepped over behind the professor.

" 'That was varvelous,' enthused our salesman. 'Do you know, that's beyond a doubt my favorite hymn.'

" 'You don't say,' replied the professor, who had been really paying little attention to what he was playing.

"He glanced at the hymn book to check on the title. It read, 'Brighten the Corner Where You Are.' "

▼

A BYRON, Calif., farmer, worn out from tramping over his acreage to gather home his 200 hogs, and ruining his singing voice calling the critters, asked his radio dealer for help. The radio dealer was on to his calling, rigged up a microphone, two loud speakers in waterproof boxes far down on the ranch fence, and a control panel at the farm house. Now the farmer stands on his porch and pages his porkers by remote control. Another item for farm electrification.

▼

WHATEVER the laundries say about home laundering, they can't ever say that it goes on strike. In fact San Francisco housewives with ironers and washers can give testimonial that the slogan of the manufacturers is true: "For Home Laundry, There's No Place Like Home." In fact, there just wasn't any other place for the home laundry during the siege.

ARVIN FAN-FORCED ELECTRIC HEATERS

No. 100 STANDARD $5.95

You Can Sell Them to Mothers for...

BABY'S BATH OR NURSERY

You Can Sell Them

FOR EXTRA OR TEMPORARY HEAT INSTANTLY

For Homes, Camps, Offices, Stores Anywhere There's 110 A.C.

No. 200 DELUXE $7.95

No. 100 Standard. Operates on 110 to 125 volts, 50 to 60 cycles, A.C. Uses about 9½ amps. at 110 volts. Size: 9½" x 5" at base. Height, 11". Weight, net 6¼ lbs. Packed, approximately 7¼ lbs.

No. 200 DeLuxe. Operates on 110 to 125 volts, alternating current, 50 to 60 cycles. Uses 11 amps. at 110 volts. Size: 10" x 5½" at base. Height, 13". Weight, net 9 lbs. Packed, approximately 11 lbs.

FIVE YEAR RECORD OF SALES

Proves the Profit Opportunity They Offer You

Now in their fifth year, these remarkable fan-forced electric heaters have proved to be good profit-makers for dealers. They appeal to all who see them—because nearly everybody needs and wants one.

Attractive in appearance and really efficient—because they heat the air and circulate it. They pick up the cold, dead air and turn it into circulating warmth.

The market is big—prices are low for volume sales—and Arvin supports you with a complete campaign of consumer advertising and merchandising . . . Now is the time to get ready for the big selling season ahead. Place your stock order with an Arvin jobber at once—or mail coupon below today.

Arvin Fan-Forced Electric Heaters are approved by Good Housekeeping Institute and Underwriters' Laboratories

Approved and Approved Good Housekeeping Institute

NOBLITT-SPARKS INDUSTRIES, Inc.
Columbus, Indiana

Please send full information about Arvin Fan-Forced Electric Heaters—the complete advertising program—and the name of a nearby Arvin jobber.

Name.....

Address.....

.....

HOTPOINT CALROD'S remarkable speed and durability mark a new era in electric cookery. In dramatic tests Hotpoint Calrod units taken from stock have been boiled under water, frozen in ice, heated white hot, hammered and twisted, without impairing the efficiency of the unit. These tests have been performed over and over again before thousands of people without a single failure.

Calrod's amazing speed and durability do not slow up with age. Accelerated life tests indicate an average life of 7½ years. Utility executives, retailers, and housewives, in every section of the country, enthusiastically praise the performance of Hotpoint's amazing new Calrod. Hotpoint Calrod delivers the kind of satisfaction and service which keep customers happy and save money for the company.

Those who want to make the greatest and most lasting success of range activities know that Calrod is the answer. They realize that the future of the range business rests on a speedy, long-lived, dependable enclosed unit—and Hotpoint Calrod is *it*.

Hotpoint gives you not only superior products, but a thoroughly worked-out sales plan and the close cooperation of trained range specialists and home economists. Get in touch with the Hotpoint office nearest you and arrange to see, with your own eyes, the dramatic Hotpoint Calrod demonstration.

EDISON GENERAL ELECTRIC APPLIANCE COMPANY, Inc., 5612 W. Taylor Street, CHICAGO

Who will fill *this* CHAIR?

IT is one of the most important decisions that any utility can make. It is important because plans, personnel and profit depend upon it. It demands an immediate decision. Why? Because right in front of you, created by the New Science of Seeing, is one of the greatest lighting harvests you have ever known, ready for the reaping.

Whoever is to fill this important chair should have every advantage of information, training, and experience already gathered, in order that he may most effectively direct and train his organization.

Someone must supervise, select, organize, train and instruct the home and commercial lighting representatives . . . must organize the routine "paper" work—coordinate into an effective business-building force, all lighting interests in the territory.

Someone must work with your merchandise department on lamp and portable sales; cooperate with your industrial engineers in promoting industrial lighting—*and see and seize every opportunity for publicity on lighting.*

This is an unprecedented opportunity to build sales upon facts. A year's experience and careful study and analysis in actual field operations has revealed a number of very pertinent *facts,* all of which are disclosed in detail in "The Utility's Operating Manual for Putting the Science of Seeing to Work."

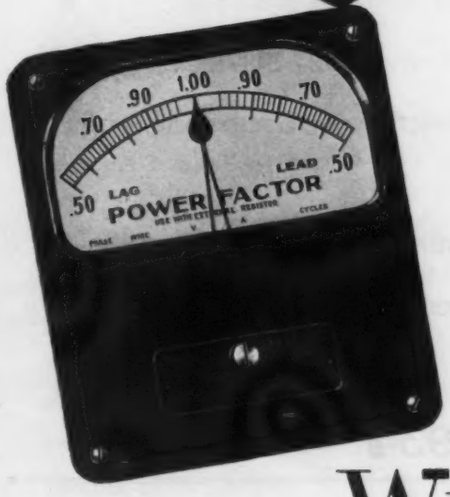
It shows clearly that results may be secured in residence lighting at a cost of from $0.59 to $0.80 per dollar of E. A. R. . . and that results in the commercial-industrial field may be secured at a cost of $0.30 to $0.75 per dollar of E. A. R.

The more you weigh the matter, the more quickly will you convince yourself that the question—"Who Will Fill This Chair?" is a paramount question which should be decided *now.* General Electric Company, Nela Park, Cleveland, Ohio.

GENERAL ELECTRIC

WESTON *Juniors*

FOR LARGE AND SMALL CONTROL PANELS

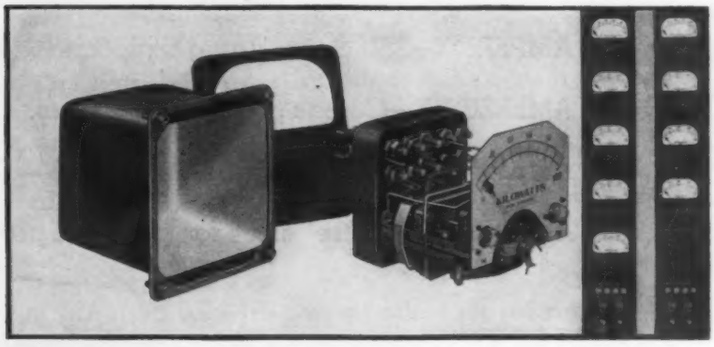


Whether the requirement is for one instrument or a complete control unit, Weston Junior Rectangular Instruments meet every qualification for modern switchboard practice.

These Model 610 Junior Instruments are only 4" wide . . . an extremely compact design. They have the same high quality, the same sturdy construction and provide that long life dependability for which all Weston instruments are famous . . . yet they save as much as 80% in switchboard space. Panel mounting, and assembly, is quick and simple as the illustration below will show.

Control units consisting of instruments, cross connection blocks and switches completely wired and assembled on steel mounting racks can be supplied if desired.

There are many worthwhile advantages to be gained in using Weston Juniors. A bulletin describes all. Send for a copy today . . . Weston Electrical Instrument Corporation, 577 Frelinghuysen Avenue, Newark, New Jersey.



WESTON *Instruments*

PACIFIC COAST REPRESENTATIVES

Eicher & Bratt,
263 Colman Bldg.,
Seattle, Wash.

C. F. Henderson,
420 Market St.,
San Francisco, Calif.

Elec'l Engr. Sales Co.
Subway Terminal Bldg.
Los Angeles, Calif.

A COMPOUND FOR EVERY PURPOSE

KNOW THEM...SPECIFY THEM

AMERICORE—National Electric Code Standard.

AMPARAK—Intermediate Performance Test.

AMERITE—30% Performance Test. Meets A.S.T.M. spec. D27-31T-AO.

AMPEROX—35% Super Aging compound with highest Oxygen Bomb Tests.

AMERZONE—Corona proof—Ozoneproof.

AMARINE—40% Submarine compound—Used without lead.

AMERCLAD—"Tire" stock for jackets of portable cords, and drag cables.

1831

1934

AMERICAN STEEL & WIRE COMPANY

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Pacific Coast Distributors

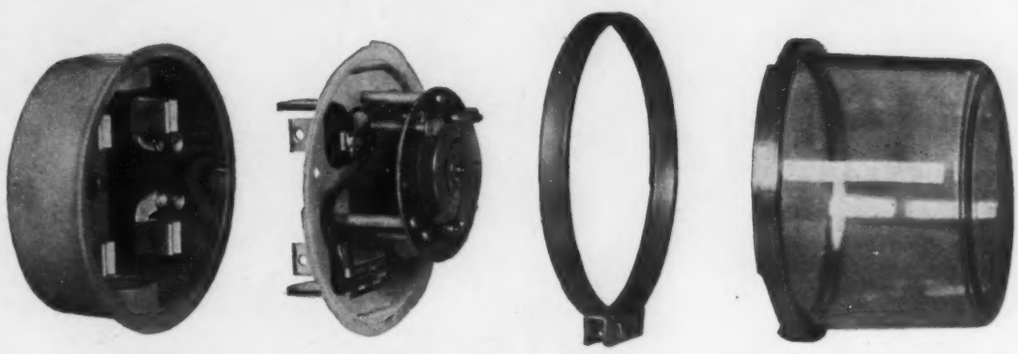
COLUMBIA STEEL COMPANY

SAN FRANCISCO LOS ANGELES PORTLAND SEATTLE

NEW WATER-HEATING BUSINESS at MAXIMUM PROFIT

Now, OUTDOOR as well as INDOOR Control with This G-E Time Switch

✓ LOWEST ORIGINAL COST
✓ LOWEST INSTALLATION COST
✓ LOWEST MAINTENANCE EXPENSE



Socket meter base *T-11S time switch* *Sealing ring* *Glass cover*

The well-known Type T-11 time switch, formerly for indoor-installation only, now also for SOCKET mounting out-of-doors

THIS time switch was designed to provide a dependable control for off-peak water-heating units. Since it is produced for that specific purpose, it has no unnecessary parts to add to its cost. It is a small, compact device which is easy to install.

Its low cost and its profitable performance in service have resulted in the adoption of this switch by many utilities as the standard for controlled water-heating installations indoors.

Now this same switch — SOCKET MOUNTED — assures you of low capital investment, simple installation, and negligible maintenance for out-of-door metered and controlled water heating.

Add profit and reliability to your off-peak installations with this switch. Call the nearest G-E sales office, the G-E Supply Corporation, or Graybar Electric Company, Incorporated, for further information.

440-48

GENERAL ELECTRIC

YOU CAN DEPEND UPON IT..

to be always uniformly good

THIS MAGNET WIRE lives up to the Roebling reputation for uniformly high quality... a reputation that has made the name Roebling famous in the field of wire products for over 90 years.

Round, square and rectangular types. A wide range of gauges. A comprehensive variety of coverings including cotton; asbestos tape and cotton; silk; enamel; paper; enamel and single silk; enamel and single cotton.

Over 60 other types of Roebling Electrical Wires and Cables also available.

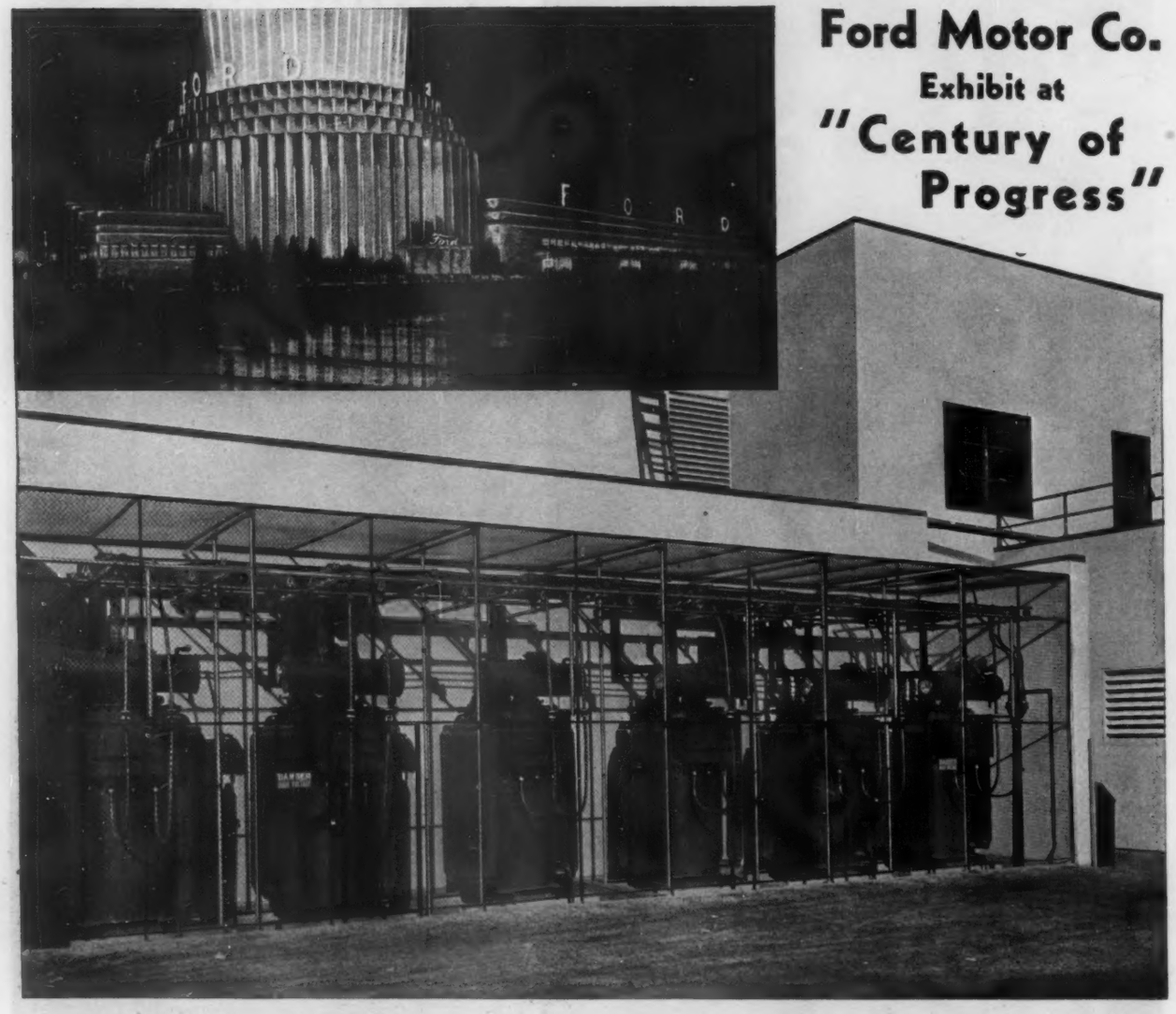
JOHN A. ROEBLING'S SONS COMPANY OF CALIFORNIA
San Francisco Los Angeles Seattle Portland

ONLY A FINE PRODUCT MAY BEAR THE NAME ROEBLING

Cut Costs With
CORRECT
LUBRICATION
UNION Red Line Lubricants are absolutely pure, of low carbon depositing qualities, and free from sulphur or any harmful acid-forming compounds. That is why they provide insurance against overheating, undue wear, and expensive shutdowns. Also, by eliminating excessive frictional losses they frequently reduce power bills.
Many western power plant, factory, and mill operators have proved, through actual experience, that Union Red Line Lubricants materially reduce operating costs per day.
Union Oil Company engineers, over a period of years, have developed a scientifically correct oil or grease to fill every electrical demand.
Get This Valuable Free Service!
Whenever lubrication problems arise, call the nearest Union representative or write the Lubricating Oil Department, Union Oil Building, Los Angeles, for the free services of Union's staff of engineers. These experts have often been able to reduce lubrication costs from 10 to 25%—yet gain increased efficiency!
Call or write today. This service is absolutely free.
NRA
UNION OIL COMPANY
UNION LUBRICANTS
"LOWER LUBRICATION COST-PER-DAY"

Industrial Substation Transformers

Six 500-kva Allis-Chalmers Transformers



Ford Motor Co.
Exhibit at
"Century of Progress"

ALLIS-CHALMERS Sub-Station Transformers can be furnished in a wide variety of types to meet the requirements of any particular design of sub-station structure. They are available with cover bushings, cable potheads or with pothead entrance chamber; inert gas protection or conservator tanks. Tap changers can be arranged for operation from the ground or from the top of the tank. The nearest Allis-Chalmers Sales Office will be glad to supply details.

ALLIS-CHALMERS

Allis-Chalmers Manufacturing Company, Milwaukee

the New ELECTRICAL WEST

August, 1934

P. C. E. A. Revived With Industrywide Program

By A. H. MARKWART
President, Pacific Coast Electrical Association

ASIDE from the "Conventions in Print" conducted by the Electrical West, and for which the industry is duly grateful, the Pacific Coast Electrical Association has had no general meetings during the past two years. Now it seems desirable, and I may say necessary, considering the several problems before the electrical industry, that we foregather again even though we continue to dispense for a further period with the annual convention of past years.

"Electrical West" again comes to the aid of the industry, furnishing the channel through which a message can be routed to the membership of the Association, for after two years of rest, the association is ready to go to work. During the vacation period, however, its structure has been modified to meet changed conditions, and the foundation has been laid and the machinery set up which will permit the personnel of the major divisions of the electrical industry to hold open forums to discuss common problems, and to exchange ideas to their mutual benefit.

The utilities and the other industry groups can learn profitably from each other and each needs the other's help. Perhaps the manufacturer, the jobber, the dealer, and the contractor groups can offer suggestions to the utilities in the matter of utility service rates and policies, and perhaps the utilities can submit to those groups ideas regarding the costs of consumer wiring and appliances and the like, all to the end of reduced consumer financial requirement and lessened sales resistance.

A brief review of the changes that the association has undergone during the past two years and an outline of recent modifications will give clarity to the nature of the industry group which is now contemplated.

After two years of association inactivity and with the cessation of active operations of the Pacific Coast Electrical Bureau in February, 1934, however, the executive committee of the association recognized the need for a broadening of its own constitution, to the end that the latter organization might be fully representative, not only in its membership, but also in its Board of Directors and officers, of all branches of the industry.

F. O. DOLSON

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W. C. Mullendore, Southern California Edison Co., Los Angeles
G. C. Tenney, *Electrical West*, San Francisco
A. D. Willians, General Cable Corp., San Francisco

Democratic Organization

In conformity with this view, the executive committee, at its meeting in June 1934, decided that the association should become a truly democratic organization in which all branches of the industry might participate. To do this it was necessary to abandon the existing constitution and to substitute new articles of incorporation with suitable by-laws. Aside from minor changes, what we have now provides that the representatives of any branch of the industry can hold executive office, the membership classification has been simplified and broadened and the bureau has been merged with the association with a view to having it concern itself with publicity, cooperative advertising and promotional work involving the relationship of the members of the association to the general public. The voting power of the association rests where it did before, with the accredited representatives of all branches of the industry.

The work of the Pacific Coast Electrical Bureau has been of great value to all branches of the industry specifically in promoting standarization, in preventing the enactment of restrictive

CHAS. A. LANGLAIS

Will Direct Red Seal, Code and Ordinance Activities

D. E. HARRIS

W. L. FROST

H. L. HARPER

C. E. HEISE

measures not in the interest of the public or the industry as a whole, in coordinating advertising, and in promoting adequate wiring and lighting.

Moreover it was recognized that notwithstanding the valuable assistance rendered at all times and outside of the association along these lines by the representatives of utilities, manufacturers, wholesalers and contractors, each such representative was naturally viewed as having selfish interests. If for no other reason than that, the conclusion was reached that the most effective manner of handling activities of this nature was through a neutral agency.

Recognizing the necessity of being fully posted concerning code and ordinance activities throughout the territory, it was decided to continue such work in the bureau and to have it act as a clearing house for information of this character. Full cooperation of all branches of the industry will be enlisted and maintained to the end that only such codes and ordinances as represent the interests of all industry branches and the public will be supported.

Cooperative advertising in the name of the bureau was believed to have been well received by the public and most effective from the point of view of those participating in its support.

Past activities in the promotion of adequate wiring have been carried on under the industry name of "Red Seal." An additional reason for retaining the trade name of the Pacific Coast Electrical Bureau is that it is licensed to promote Red Seal activities and issue Red Seal certificates to home owners. All contractors and architects, many builders and home financing corporations today acknowledge the value of the Red Seal plan.

A. C. JOY
Directs Bureau Advertising

Cooperative Activities

Having definitely established the bureau's value for cooperative effort under a neutral trade name, steps have been taken by the new association toward carrying forward these functions, through the appointment of standing committees.

Under the proposed plan of organization, the cooperative advertising program has been placed in charge of an Advertising Committee, under the chairmanship of Al C. Joy of the Pacific Gas and Electric Co.

Considering the close relationship between wiring codes and home wiring, these features have been placed under a Red Seal and Codes Committee, with D. E. Harris of the General Electric Supply Corp., as chairman and W. L. Frost of the Southern California Edison Co. Ltd., as vice-chairman.

Under the chairmanship of H. L. Harper of the Graybar Electric Co., Los Angeles, and the vice-chairmanship of C. E. Heise of the Westinghouse Electric & Manufacturing Co., a third committee, on Appliance Ordinances, is likewise being organized.

F. J. Kiefer will be retained as regional manager of the bureau in northern California.

While, as now constituted, the association has a place in its company memberships for the effective participation of all industry groups, including utilities, electrical manufacturers, jobbers, sales representatives, dealers and contractors, it seemed essential that there be provided some form of activity to insure the interested support of the many individual members now on the rolls, bearing in mind, however, that duplication of work now being carried on by company staffs should be avoided. To accomplish this, the new by-laws provide for the establishment of standing sections concerned with specific phases of the association's work. Each section will be under the guidance and control of a section committee composed of a chairman, vice-chairman and nine members. Any member of the association may affiliate himself with and participate in the activities of any and all sections by signifying his desire to the section chairman.

In doing what we have done we feel that the value to the industry that the association and the bureau have built up in their respective lives of 18 and 15 years will be retained. The past has been used as a guide, but the organizations of the past have been reshaped to meet the conditions which now confront us. We ought to be able to give good service and add strength to the electrical industry in our region.

Two Sections Planned

The activities proposed for this year, so far as the general association membership is concerned, will be concentrated in two sections—one on business development and one on operating economics. The Business Development Section will concern itself with commercial problems. Since the sale of energy depends upon the sale of energy-consuming devices, it is expected that the program of work of this section will be such as to enlist the interest of the manufacturers, jobbers, dealers and contractors, as well as that of the utilities, and to coordinate the efforts of all in order to secure a unified result. This Section will be under the chairmanship of H. M. Crawford of the Pacific Gas and Electric Co. and the vice-chairmanship of W. C. McWhinney of the Southern California Edison Co. Ltd.

Many practical ways of increasing kilowatt-hour sales in the various classifications should be brought out, if the section members use their imaginations. What the utilities want is a brainstorm to destroy the power surplus pest. Much thinking is necessary to the solution of this problem in our territory, because of the degree of saturation which has been reached in at least two customer classifications, namely—the domestic and the rural.

Increased Sales Needed

Being under regulation, this industry is beset by problems of discrimination. This is unfortunate particularly in these times when it is necessary to offer inducements such as those suggested. We may not offer bargain sales as others

do. What is given to the consumer of today may have to be given to the consumer of yesterday. For this reason any sales plan that might be proposed is likely to be criticized on the ground that what is done for the new, will have to be done for the old customer also.

Under the circumstances, considering that the utility cannot stand any reduction in revenue, it is going to tax the ingenuity of our most resourceful minds to develop plans looking to increased use of electric service. The problem becomes more intriguing but nevertheless more captivating to those inquiring minds which might be directed to its solution. The solution would seem to call for a rational plan to increase electric sales by means of inducements which do not cause discrimination in respect to past sales.

The utility executives, realizing as they must, the importance of new ideas, will, I am sure, welcome them even though they be revolutionary, if they lead to increased revenue. To put it plainly, they need the money to pay increased taxation, regulatory expenses, and the cost of compliance with NRA, and to meet the other extraordinary burdens which have been placed on the backs of the utilities during the past two years. To the satisfactory solution of many of these problems of business development, the other industry groups can contribute new and helpful viewpoints, through participation in the work of this section.

Operating Economics Section

Realizing that the industry, by reason of a power surplus, probably will not be faced with major construction enterprises for some time to come, and that the large technical group in the association membership would be concerned with operating costs, it was felt that a technical section should be organized with such a major objective.

While the Business Development Section will have as its purpose increased utility gross income, the Operating Economics Section (the name adopted for the technical group) can function to best advantage in meeting and discussing the operating economics of both transmission and distribution, but especially of distribution, as effecting the increased load which it is confidently hoped will be added to the partially loaded distribution feeders through the efforts of the business development branch of the industry. New promotional rates are today effective and new types of load are being added to the lines, both of which enhance the importance of an agency for the interchange experience and ideas related to operating economics.

In a word, this section will devote itself to improving operating return, seeking ways of reducing operating expense and fixed charges, all to the end of increased net income. Members of this section will also consider such problems as that of serving load at minimum cost where new capital is required, of adequate house wiring for consuming devices at minimum cost, of accident reduction, of prevention of energy diversion, and others having a bearing on annual cost. Roy R. Cowles of the Pacific Gas and Electric Co. has been appointed to the chairmanship of this section with K. B. Ayres of the San Diego Consolidated Gas & Electric Co. as vice-chairman.

Thus for the present there will be but two sections. Each of these will hold two conclaves a year, one in the north and one in the south. Other sections may be necessary as time goes on, as we grow, and as may be required to engage the interests of the many other departments of the industry. The utility accountant, the credit man, and others will have much to think about for problems originating out of changes in regulation, changes in the form of and increase in taxation, modified methods of extending credit and making corrections in these times of economic stress, and other matters will have to be studied sooner or later. Then, too, utility rate structures provide a wide field of worthwhile endeavor. Some one, some day, is going to devise a scheme of charges for electric service which people can understand and which will not contain elements which antagonize the consumer. Here is one of the most fertile fields for the exercise of constructive imagination.

Again, sooner or later, some method will have to be devised to impart information which will assist the public utilities to regain the esteem of the public for it is certain that the utilities do not merit the criticism and attack directed against them. It has never been made clear to the public that there is a vast difference between consicentious utility management and the unconscionable operations of astute manipulators in utility securities. The public must be brought to the understanding that, despite the enormous losses of unfortunate investors, no consumer has suffered, for rates always have a downward trend irrespective of the manipulations of utility securities during the financial orgy. This problem in public relations should interest many when a decision is reached to give it study.

To stimulate the membership of the two sections, it is proposed to offer prizes for novel, unique, and original ideas along lines that will increase the gross and net of utility operation. Such ideas, however, must take proper account not only of the wages due to capital and labor, but also the interest of the consumer and the public to the end that there is an equitable distribution of the economic benefits of our industry undertakings.

Our members will recall that the dues for individual members were formerly three dollars per year. During the past year they have been but one dollar. With the reopening of activities it has been decided that the dues for individual members effective January first will be two dollars. These will include a subscription to "Electrical West." The company member dues will be on a schedule similar to that in the past.

I submit this story of our organization, of what we want to do, to the membership, and these certain problems of the industry to the sections, their committee chairmen and members, in the sincere belief that all will work faithfully and will contribute effectively to the progress of the Association during the coming year. I can assure you that what work you do, and the interest which you take in doing it, will be mutually beneficial to yourselves and to the industry of which you are a member.

Will Head Business Development and Operating Economics Sections

H. M. CRAWFORD

W. C. McWHINNEY

R. R. COWLES

K. B. AYRES

Sales of the Month » » »

All forms of advertising were used in the campaign. Here is one of the many billboards scattered throughout the company's rural territory

P. G. and E. Campaign Record— 2,429 Ranges and Water Heaters

FIELD investigation, development of a plan based on these findings and close follow-up after the plan had been placed in operation were the successful elements of a five-month domestic load-building drive of the Pacific Gas and Electric Co. during the first half of 1934. The result was the sale of 2,429 electric ranges and water heaters and the obtaining of $115,149 in new annual revenue by the sales force.

When plans to recoup lost domestic business brought on by the depression were under discussion, the decision was reached that a field interview with division sales managers and salesmen was essential. Conducted by E. F. Perkins, manager of appliance sales, this survey revealed:

1. That the price of electric ranges and water heaters was too high for the times.

2. That where a prospect was using a competitive fuel range and/or water heater, the cost to change over to electricity, including wiring installation, was too high and not warranted from the prospect's viewpoint.

3. That trade-in allowances and terms were too conservative for the times.

4. That the company had hundreds of electric ranges on its lines where no electric water heater was installed.

It was agreed that Item 4 offered the greatest possibilities for immediate load, with the added advantage that transformer and service capacity in every instance was ample to handle the additional load. Problem was to devise a sales plan that would arouse the enthusiasm of the sales force and be unusually attractive from the standpoint of the prospect. The final plan incorporated these features:

A new special rate whereby the customer obtained all energy in excess of 170 kw.-hr. per month at one cent per kw.-hr. where a standard range and water heater were installed with a double-throw or load-limiting switch between the range and water heater.

A good low-priced storage-type electric water heater.

A good low-priced line of electric ranges.

A plan that permitted the acceptance of a competitive fuel range as payment in full for the installation cost of an electric range and water heater.

A low flat-price wiring cost for new installations.

A selling offer that called for a down payment as low as $7.50 with 18 months to pay off the balance and where a range and water heater were sold together, 36 months to pay.

An arrangement with dealers so that they could offer exactly the same terms as the company with profit to themselves.

Sales results for the period between February 1 and June 30 showed that, in cooperation with dealers, the company installed 1,254 3-kw. automatic storage water heaters connected with electric ranges with load limitors as compared with 841 5-kw. water heaters sold during the same period in 1933. At the same time 1,175 electric ranges were sold.

J. E. Dilley in the Sacramento Division sold 168 per cent of his quota to lead the sales force with 88 water heaters and 35 ranges. A feature incorporated in the campaign was a special prize to the salesman selling the one thousandth water heater. Despite the element of luck in this offer, Dave Nock of the Shasta Division, who won this prize said, "Well, you can call it luck if you want to, but the more sales I made the more chances I had of winning. You can't win if your are not in the game." His record was 46 water heaters and 61 ranges.

Late delivery of water heaters handicapped the sales force so that actually only three and a half months were devoted to this phase of the campaign.

A prize was offered to the salesman selling the 1000th water heater. Here is Dave Nock (left) receiving the award from G. R. Milford, Shasta Division manager, while Ray Wadleigh (right), division sales manager, looks on approvingly

R. A. Stewart, dealer at Corning installed the 1000th water heater in the home of Mrs. Newton Isaac, who has used an electric range since 1923

The snowball effect is shown by the figures for each month as follows:

	Ranges	Water Heaters	Total Units
February	100	41	141
March	117	149	266
April	201	277	478
May	321	379	700
June	436	408	844
	1,175	1,254	2,429

Commenting upon the success of the campaign, H. M. Crawford, general sales manager, says, "Our program for the entire year 1934 calls for the sale of 7,600 units, and if we can maintain the volume of sales of the past few months, we shall very nearly approach our total quota."

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Advertising Head Predicts Merchandising Gains

F. W. Sielers, president of Cramer-Krassalt Co., Milwaukee, Wis., believes that the sales of electrical appliances will gain additional momentum during the fall months. Interviewed on a recent trip through the West, Mr. Sielers expressed a belief that general business was recovering in spite of the difficulties presented in adjusting itself to new conditions.

On appliance merchandising, he favors group selling and group advertising to promote specific appliances and believes that organizations trained in direct selling methods make the best retail outlets. The success that any organization makes of retailing electrical appliances depends upon the organization itself and not upon the type of outlet although stores having a large public traffic have the best opportunity of developing the appliance business, according to Mr. Sielers. Specialty selling methods also will have to be adopted by any merchandiser who hopes to build a volume of this type of business.

Norge Refrigerator Co., the advertising of which is handled by Cramer-Krassalt Co., conducted an intensive summer sales campaign which included a series of national sales meetings in all of the important cities in the U. S. New lines and models, including a new refrigerator, a new oil-burner and a gas broiler for restaurants were introduced to the trade by a group of executives from the factory. Included in the group, with Mr. Sielers were Dayton Young, manager of the washing machine department, and Betty Apple, home economist of the Norge Company. Norge representatives in the West, George Pizarro and Lee Cox, accompanied the group in their respective territories.

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The Electrical League of Colorado, on July 1, celebrated in a quiet manner its thirteenth anniversary. The League, important factor in everything electrical in Denver and environs, was first organized July 1, 1921. If anything, despite a depression or two, the League seems to be more vital and necessary to the electrical development of the region than ever.

Range Executive Predicts Increase

A most optimistic outlook for the promotion and sale of electric ranges in the western states is foreseen by J. D. Kelly, manager range sales, Westinghouse Electric & Manufacturing Company, who has just completed a 6,000-mile trip through Iowa, Idaho, Oregon, Washington, and the surrounding territory. Kelly, with Miss Ruth W. McManus, supervisor range home economics for Westinghouse, put on a range play, "A New Deal for the Housewife," for some 2,700 utility executives and employees and range prospects.

Kelly, in introducing the range play to the western states, explains that "dramatic presentation has a definite place in the sales plan at the present time, and we have found this method of telling the story of electric cookery is well worth the effort. With this idea in mind we have built special scenery and sets to produce "The New Deal for the Housewife."

Meetings in Utah were held with the cooperation of Ralph Bleak, merchandise manager, Utah Power & Light Co. In Idaho meetings were held with the cooperation of K. M. Robinson, president, and L. Brainard, general sales manager, Idaho Power Co. and with the sales staff of Falk's Department store, Boise. Portland General Electric Co. meetings were arranged by A. C. McMicken sales manager, and Orr Crites, merchandise manager.

Staging the Westinghouse range playlet in Ogden were John H. Lowden, Westinghouse Supply Co., Salt Lake City; J. D. Kelly, manager of range sales, Westinghouse Electric & Manufacturing Co., Mansfield, Ohio; Ruth W. McManus, supervisor of range home economics, from Mansfield, and W. F. Critchlow, merchandising manager, Utah Power & Light Co., at Ogden.

The play was presented in the following cities on the Utah Power & Light Co.'s properties: Salt Lake City, Provo and Ogden, Utah; Preston and Rexburg, Idaho. For the Idaho Power Co. at Pocatello, Twin Falls, Boise and Payette, Idaho. The Portland General Electric Co. sponsored the play at Portland and Salem, Oregon. Properties of the Puget Sound Power & Light Co., enjoying the promotional activity were Chehalis, Olympia, Seattle, Bremerton, Everett, Bellingham, and Wenatchee. Tacoma and Seattle municipal light departments also staged the play.

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Portland Firm Stages Exposition

The unique spectacle of a complete electrical exposition attractively housed in a large auditorium all sponsored by one retail dealer was witnessed by the public of Portland, Ore., during the last week in June. Meier & Frank Company, Portland's largest department store, gathered together its entire range of electrical appliances into its spacious auditorium, 200 by 100 ft., from a dozen different departments in the twelve story store covering a city block. Thirty manufacturers of the devices offered by the store were represented in the products displayed.

Each manufacturer was given booth space for display of his complete line and these booths were manned in some cases by manufacturers' representatives and in others by salesmen from the store. Demonstrations were carried on in the booths continuously during the day from 9:15 a.m. to 5:45, the store's hours, and on three days during the week cooking schools were conducted from the stage, using ranges, refrigerators and small appliances, by Irene Kerr, the store's home service expert, and Ada Reed Mayne, director of Oregon Dairy Council.

Department heads of the various electrical departments in the store, report excellent results from this exposition. Crowds were well distributed througout the day so that at all times the booth attendants were able to gain individual attention of the visitors, thus gathering many excellent prospects. This was particularly true of the range, refrigerator and other large appliance departments. The exposition was publicized through the store's regular advertising in the daily newspapers with which many of the manufacturers having devices on display tied in, and by placards distributed throughout the rest of the store and by elevator girls orally to their passengers. Many thousands visited the exposition during the week.

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Edison Starts New "Car-Buying" Plan

To the housewife who wants to enjoy the use of all three electric appliances—range, refrigerator and water heater — the Southern California Edison Co. Ltd., has arranged with dealers on its system to offer the three in a single purchase, and with but a combined monthly payment of $12.77 on all. The plan is aptly termed the "car-buying" plan, in that it is like buying a car completely equipped.

Further incentive to accept such a proposition is given the buyer by announcement that with such a purchase the new domestic wholesale rate is available to the user.

An Orchid to San Diego...

United in Cooperative Drives, Dealers and Utility Keep Electric Appliances in Forefront of City's Buying

U. S. FLEET may be on the Atlantic coast, post-prohibition's effects may keep visiting hordes home instead of en route to the border or from it, in fact almost anything may happen, or not happen, in San Diego, but there is no let down on the concentrated, persistent drive being made in that city by dealers and utility to sell more electric appliances. It is one region in which the entire facilities of the utility (San Diego Consolidated Gas & Electric Co.) have been assigned to the cooperative organization (Bureau of Radio and Electrical Appliances of San Diego County), the better to develop business for the whole industry. In this joint program, the power company is content to become just one of the boys, one of the participants in a united drive. The leadership comes from the dealers and from the Bureau.

Results are what count, these days. Results in this case have been counting, steadily and consistently. For the four months period ending April 30, reports from 40 San Diego county outlets showed an actual sale of 1,997 radios, 656 refrigerators, 42 ranges, 1 water heater, 660 washers, 71 ironers, 308 cleaners, 97 mixers, 23 cookers and casseroles, 209 percolators, 170 toasters, 367 irons, 77 waffle irons, 165 hot plates, grills, etc., 77 heaters, 52 heating pads, 19 sewing machines, and 221 miscellaneous items. It is estimated the total sales of radios was 3,311, refrigerators 1,062, and washers 1,550, since these reports only covered 40 dealers' sales. (The utility does not actively push ranges and water heaters in this region, which accounts for the low number sold. In spite of this fact, the increase in range sales for the four months ran from 4 in both Jan. and Feb. to 12 in Mar. and 22 in Apr.)

How all this is done is the most interesting and valuable phase of the job. A. E. Holloway, vice president in charge of sales, has practically assigned E. W. Meise, superintendent of merchandising, and Forrest Raymond, superintendent of advertising, to the successful operation of the Bureau. These utility men have thrown themselves into the task with an accord that is contributing in a large measure to the success of the entire undertaking. J. Clark Chamberlain, secretary-manager of the Bureau, credits them with a fine brand of unselfish cooperation. And the advertising ideas and methods of Forrest Raymond are unique in their catchiness and human appeals to public acceptance.

F. Raymond—"It's about time radio received some attention from the utility"

A month by month summary of activities and campaigns will provide others with ideas which can undoubtedly be employed elsewhere with like success.

"Biggest Show on Earth for 2c"

February and March saw a most unusual radio set campaign carried through. "It was about time that the radio received some attention from the utility," said Mr. Raymond. His figures show that 70 per cent of the utility's customers use a radio, and use it a large percentage of the day; in fact the revenue from radio use is a good part of the utility's business. To stimulate new set sales, a series of radio broadcasts were given on station KGB, at 8 p.m. each Tuesday and Thursday evening, incorporating a novel contest.

The dominant theme of the contest was that radio gave "the biggest show on earth for 2 cents an evening." The contest itself was built around the idea of identifying theme music of well known national programs. Contest entry blanks were available only from radio dealers. On Mar. 1 more than 5500 entry blanks had been called for at more than 100 stores; 8,000 before the contest closed. Response was so great, and the game so interesting, that it was carried over into March for two weeks. Contestants getting three-quarters of the answers correct were given a picture of a favorite radio star requested by them if called for at a dealer's. The station was hard put to supply enough pictures.

Dealers reported sales in Feb. of 550, March of 564, in April 441 radio sets. It is estimated a total of 915 were sold in Feb., 940 were sold in March; 725 in April, as only 40 dealers reported definite figures.

Radio service stations received an unexpected upturn of business as a result of a "plug" given repairs and servicing in the announcements. Tube sales were better than in years. So

"Doc" Holloway practically assigned them to the Bureau

effective was the slogan about "the biggest show on earth" that theater people complained. So in April, "Frosty" Raymond carried them in a refrigeration advertisement, advising the quick pickup of the dinner dishes, putting perishables in the electric refrigerator, and "off to the movies." (See Electrical West, May, 1934, p. 24.)

In addition to radio broadcasting, 36 advertisements, 2 col., 10 and 12 in., were carried in the three San Diego papers, throughout the month, featuring washers, cleaners, ironers, percolators and toasters. Each was run over the signature of the Bureau and dealers ran tie-in ads alongside. Results of this were cited in the second paragraph. This was the first time that general promotion on a consistent schedule had ever been applied to these appliances by an industry group.

"Chilled Food Institute"

April saw the first event of its kind anywhere, a "chilled food institute," a three-day educational show staged in the newly remodeled Amercian Legion building in Balboa park. About 7,500 people from all parts of the county attended. Each was given a menu program, which B. Edna Galvin, demonstrated and explained to audiences of 1,000 each day. Bureau manager Chamberlain had this to say,

"Apparently there were only two classes of people who attended the institute and show—those who owned refrigerators and desired to know better how to use them, and those who are or will soon be in the market to buy. The so-called 'carpet-baggers' and sample seekers were not in evidence.

E. W. Meise—"subordinates his company's part"

"Thirteen exhibits were built around the auditorium. Makes participating were: Cold Spot, Crosley, Electrolux, Frigidaire, General Electric, Grunow, Hotpoint, Kelvinator, Leonard, Montgomery Ward, Norge, Stewart-Warner, and Westinghouse. As you know, we arbitrarily planned to include all of them, and this is all that are sold here. After Miss Galvin's daily sessions, which were concluded at 4 p.m., each exhibit was properly manned with salespeople, and for an hour or more each day, there was quite a play. Then each evening at 7 p.m., the doors were opened for the night crowd. At two spots, usually about 8 and again at 9 p.m. we had entertainment, with nice long rest spells in between so that the public could see what we had to display.

"We had stunts 'til you couldn't rest. I assigned a different one to each exhibitor so we would be sure to get over all of the possibilities of the electric refrigerator. One for example, was asked to make popsickles, and this they did, just like the store variety. These were given away by hundreds. Others demonstrated how to freeze trick ice cubes with cherries and other fancy centers in all colors. Salads, ice creams, sherbets and other frozen desserts were properly frozen and kept on display. Vegetable crisping was thoroughly demonstrated, and so on down the line, including proper covering of left overs, placing of foods, bottle storage, keeping of flowers.

"Another smart stunt was this: We installed a ten ft. freezer case with three full display shelves, and used it for the dual purpose of displaying the frozen desserts and other delicacies prepared by Miss Galvin, and for the demonstration of the savings possible in buying meats and other perishables. In this demonstration we enlisted the aid of one of our food handlers. Meats of all kinds were properly displayed, with cards indicating how much could be saved through quantity buying. Other perishables, such as fruits and berries were also shown. This part of the show was always a great attraction."

"Public Enemies"

Advertising for the show was corried over the name of the Refrigeration Bureau, a unit of the Bureau of Radio and Electrical Appliances. The special sections, the tie-in ads, the consistent advertising message of the bureau, was carried throughout the month.

Immediately following the show, Mr. Raymond presented to a meeting of dealers and distributors the follow-up campaign. Its theme was the old "bug story," telling of the need for uncontaminated foods. The well known "California cooler" was kidded.

In June and July a radio campaign, supported by newspapers and billboards (in fact all campaigns use these mediums) with a novel theme, was run. Known as "Public Enemies," the program ran twice weekly, on Mondays and Thursdays, over KGB, at 7:45 p.m. Each was a live talent program of 15 minutes, dramatizing some thrilling scene from the history of the medical profession. At the close of the program the title, "Public Enemies" was explained as referring to bacteria, and electric refrigeration was shown to be an ally of the medical profession in combating these enemies of health.

Next thing on the program will be the second annual electrical exposition, which is scheduled to be held, like the last, at the municipal pier, at the foot of Broadway. This time more space

J. Clark Chamberlain—"We had stunts 'til you couldn't rest

will be taken, for many were disappointed at the last minute in not being able to get space. The dates are Sept. 26 to 30. Exhibitors of last year, the announcements state, will be given an opportunity to take the same space occupied then if they want it. A low overall charge per space has been worked out to include decorating, signs, and floor covering, as well as the lighting, etc. Advertising will be carried by the utility in the Bureau's name, with tie-in ads from dealers and distributors. All signs point to it being a still better exposition than last year, and that, it will be remembered, won a national refrigeration show prize.

Utility Is "One of the Gang"

In its own selling of appliances, the utility remains just one of the active dealers in the Bureau, with no attempt to dominate or force the situation. True, E. W. Meise, merchandising manager for the power company is president of the Bureau this year, but he subordinates his own company's part in order to stimulate and improve dealer sales. The company's ten district offices have stores in which appliances were sold. The company carried separate advertising, as a dealer, in each cooperative campaign, featuring the wares it handles. Dealers of San Diego feel that the utility is proving itself a fine team mate, and truly one of them in every respect. This, after all, is true cooperation.

Portland Stages Joint Ironer Drive

A campaign on electric ironers in the Portland, Ore. territory in which five manufacturers of leading makes offered in that territory collaborated with the two utility companies serving that region was effective in arousing considerable interest in this device during five weeks in June and July. During each of these weeks one of the makes was featured in advertising run by the two companies offering an ironer free to the winner of a slogan contest.

Ten-word slogans presenting the particular ironer advertised each week in a catchy manner were asked for in the advertising. All this advertising was run over the names of Portland General Electric Co. and Northwestern Electric Co. and in each case named the dealers handling the machine in the territory of these two companies. A condition of the contest was that slogans must be presented through the dealers so that each dealer had an opportunity to demonstrate to develop his own prospects from this activity. Three judges then considered all the slogans entered and awarded the ironer offered by the manufacturer to the author of the best. Winning slogans were: "Proven by test, Easy Ironer is the best"; "Simple, speedy, cheap to use, 'Thor' will banish ironing blues"; "For ironing needs, the 'Conlon' leads; its perfection your protection"; "Economical, easy, thorough—best! Apex ironer stands the test"; The winner of the General Electric slogan was not announced at the time this was written.

Sales results were somewhat handicapped by the effect of the longshoremen's strike which has paralyzed the port of Portland since the middle of May, having a depressing effect on all business. Dealers report, however, an accumulative interest in this particular device far greater than has prevailed any time in the past. Approximately 1,000 slogans were received each week.

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Analayzes Gas Range Selling Methods

A courageous and thorough analysis of the methods and sales claims made in selling gas ranges, especially in competition to electric ranges, is made in a booklet just issued by Electromaster, Inc. of Detroit.

The analysis goes into both the advertising and the selling methods used, found as a result of a survey in Detroit. That city, fourth in population in the nation, was used as typical of all large city conditions.

All gas range advertising for a month was analyzed as to amount of space, who the advertiser was, selling points featured and price. Shoppers then were sent to answer advertisements and to record experiences. The results of these tests should prove of interest to any electric range merchant or sales executive.

Denver Goes Back to Little Wood Shack

Transforms 50-year old Condemned House Into Modern Bungalow as Demonstration of What can be Done to Modernize the Home

A FRAME structure more than half a century old, an old house in Denver was condemned early this year as unfit for human habitation. Richard L. Davies, director of Colorado's Cleanup, Paintup, Modernize campaign, seized upon the structure (with the owner's consent) as a symbol to demonstrate what "modernize" means in a big way.

In cooperation with three house movers, whose services were voluntary, he had the structure transported to the downtown district and located on one corner of the square from which Denver's venerable courthouse was removed a few months ago by wreckers. Then renovation labors began.

Contractors, laborers, electricians, architects (supervised by the Denver Small Homes Bureau) lumber dealers, paint merchants, landscape artists, interior decorators, heating experts and even the Junior League—which furnished free lunches for workmen—contributed services and materials to provide an object lesson for the public. When they were done the former owner, E. M. Nesbit, scarcely recognized the antique habitation. Original materials were used where they would not show. New lumber and paint, combined with architectural genius, produced a transformation greater than is apparent in Flapper Fanny when she emerges from a beauty shop. Colonial, externally and internally, the old shack became something for royal honeymooners to write home about. Incidentally, it furnished a gorgeous publicity vehicle for Mr. Davies' Cleanup, Paintup, Modernize crusade.

Electrically, the domicile contains just about the last word in equipment. Practically all of Denver inspected it; observed the Old English syle of lighting fixtures in living rooms and bedrooms, and the modernistic equipment in kitchen and bath. Result: Local electrical contractors and dealers noted a steady upturn in business attributable to the object lesson on the Courthouse Square.

William A. J. Guscott, perennial public spirted promoter of all things progressive in electricity, temporarily abandoned his duties as a private contractor, and sat up nights to discharge his functions as president of the Denver Electrical Contractors Association in order that he find time to act as supervisor of electric installation. He was delegated to this job by George Bakewell, Jr., manager of the Electrical League of Colorado which sponsored electrical phases of reconstruction work. The Electrical League bought an electric clock, an electric refrigerator, an electric range. General Electric Co. donated switches, receptacles, etc. The Sechrist Manufacturing Co. donated electric fixtures. The International Brotherhood of Electrical Workers, Local No. 68, contributed the labor. About $420 worth of wiring and fixtures went into the house. A larger amount was spent on appliances.

When installation work was finished, there were approximately seventy outlets in the five-rooms- and-bath house. All clothes, linen and china closets were equipped with automatic switches. There was one four-way switch; seven three-way switches; two mark-time switches; two weatherproof receptacles for decorative and yard lighting; and a multitude of other conveniences too numerous to mention, all controlled through a Westinghouse no-fuse load center—another contribution to the cause.

The call button at the front door, incidentally, sounds an electric chime instead of the conventional buzzer or bell—gift of the Square D Co. Wiring —and there was plenty of it—was the gift of the Denver Electrical Wholesalers Assn.

Considering the limited space to which electric artistry was limited, Supervisor Guscott and his cohorts accomplished something just short of a miracle. John Malpiede, city electrician, who is also a member of the Electrical League of Colorado, found nothing to criticize when he made his official inspection. George Bakewell proudly affixed the Red Seal sign, to which too few Denver homes are entitled.

Yard and garden lighting were emphasized. Landscape architects directed sodding of the entire premises surrounding the Modernized Home; rose bushes were planted and graveled walks laid out. Positions for flood and spot lights were indicated, and power outlets located adjacent to front and rear entrances.

Denver's Junior Chamber of Commerce, sponsor of the statewide Clean up, Paintup, Modernize movement, was godfather to the model electrical home, sharing honors with Governor Edwin C. Johnson and Mayor George D. Begole who made dedicatory addresses in the presence of loud speakers and a huge crowd of citizens.

Nationwide, a new recovery deal for the construction industry is just about to be launched by the Federal Housing Administration, (FHA to the trade, in customary alphabetical form). It will be aimed at those who have money to lend, materials to sell, and to home owners who would borrow money to buy the materials and labor. Pertinent point is that it will be limited to the communities that take the initiative and assume local leadership. The accompanying article, while it deals with an independent drive of that nature, shows what can be done to dramatize the idea of home modernization. It points the way in which other cities may proceed, how the electrical industry in all branches can tie itself to the program to see that a modernized home is modernized electrically.

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Agricultural Advisory Service Inaugurated

To help the farmer with his electrical problems, the Southern California Edison Co. has organized a field organization known as the Agricultural Advisory Department which is ready to help farmers and ranchers in its territory. At present the force consists of seven men located at strategic agricultural centers.

In addition to being carefully selected for both his theoretical and practical knowledge of problems of the farm, each man is a specialist in rural

Edison's uniformed rural specialists drive especial cars equipped for demonstrations

electrification. Agricultural specialists are provided with an automobile equipped with demonstration equipment for various electrical applications on the farm. The service is intended to aid the farmer in providing better dairy sterilization and cooling, brooding and incubating, insect control, refrigeration and many other applications in which electricity can provide more economical operation of the farm.

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A new branch office has been opened by the San Diego Consolidated Gas & Electric Co. to serve its Normal Heights district. The new office is at 3362 Adams Ave., San Diego.

Jack Reeher, stands ready to demonstrate and sell his tray washers to any visitor to San Jose Electric Co. Mrs. Reeher just outside the door, is a vital part of the staff, too

Sold 167 Tray Washers in 90 Days

DEMONSTRATIONS — plenty of them, these plus consistent and unremitting selling, plus a fine goodwill built up over a five year period, make a steady volume of sales of washing machines, ironers and vacuum cleaners for the San Jose Electric Co., 123 South Third St., San Jose. J. A. Reeher, its youthful owner and manager, cites a record of 167 Little Giant tray type washing machines sold during the months of March, April and May as proof of the pudding.

Specializing has a great deal to do with it. Mr. Reeher has believed in that from the start. Hence he has stuck to one line of washers and ironers of the conventional sort (Thor), one line of vacuum cleaners, and to the tray washer. Perhaps later, there will be one line of refrigerators, he says. He has never handled a washer selling for less than $60 and does not intend to. There's not enough profit in such merchandise, he feels, to cover sales cost.

But with a special product, such as the Little Giant, having numerous special selling points—saving in space, can be filled from the faucet, drained by pulling the drain plug, and numerous mechanical and convenience features—a real selling method can be designed and carried on consistently. Mr. Reeher's organization consists of a woman solicitor, 5 salesmen, and two service men. Floor sales he handles himself, as manager of the office and crew. First, each member of this crew is thoroughly sold on the product. Then, by means of demonstrations on the individual back porches or laundries of residents of the community, the selling is accomplished.

San Jose Electric has an average of 50 or more machines on demonstration all the time. One out of every three is sold. Those not sold are quickly prepared for another demonstration, since the tray washer has so little to it requiring refinishing to put it back in new condition. Of the sales made in the last 24 months there have only been 2 reverts. Yet sales are made on small payments.

The service angle is most vital, Mr. Reeher believes, and practices what he believes. "It is the most vital part of a growing business to keep every customer thoroughly satisfied, eliminate complaints. We have a motto, or at least a principle, that we will never let the sun go down on a complaint. The service department not only takes care of any troubles, but is valuable in repairing washers of every make for our customers. We recondition some of the washers traded in and advertise these for sale in the classified columns, but do not make a business of buying in old washers.

"Since I started in business five years ago this June, with one borrowed vacuum cleaner, we have sold over 8,500 people some item of electrical merchandise in this region. (Santa Clara, San Jose, Willow Glenn and Los Gatos.) Of all of these customers I am sure there have not been more than five or six whom we have not been able to satisfy as to the service of the appliance sold. As a result nearly all of our business today comes to us as a result of the goodwill of these satisfied users who send prospects to us or tell us of them.

"We do consistent advertising, particularly in the classified columns, with more or less regular display space, too. Simple, 'reason why' copy is used in these ads. This runs us about $100 a month but is worth it.

"Our salesmen are selected carefully. I never hire a man until I know him, where he comes from, and his past record. Once he is hired we play absolutely fair with him and expect the same from him. He is thoroughly protected on all of his commissions. We pay a regular salary or drawing account, plus commission. We feel that this is conducive to greater loyalty, and gets and keeps better men. Where they need a car, we help them get it."

Besides the local territory San Jose Electric has a number of resale dealers working under it. These give distribution in smaller communities where it would be costly to maintain a sales force working out of San Jose.

Mr. Reeher quotes some pertinent facts about the washer market from J. T. Gibson, manager of the firm manufacturing the tray washers. "Awhile ago Mr. Gibson told me that his company had made a survey in many cities of the West, in homes built within the last 10 years. Of these 85 per cent have wash trays, or sanitary trays, or stationary trays, whatever you want to call them, installed. Of these homes only half, or 50 per cent, have room enough for a washing machine. That is our market. We find these averages to be very true in our territory.

"It is considered about average in building a house to figure the cost of building at about $4.00 per sq.ft. A washer takes about 4x5 ft., or 20 sq.ft.; $80.00 worth of space. That's why it is at such a premium.

"On ironers, I find that this matter of space to keep it, is a serious sales obstacle. Seven out of 10 prospects for an ironer will say, 'I don't know where I'd put it'. The table top kind therefore, sell the best, because they can be used for table space when not in use as an ironer. The wringer post kind is not very well accepted, I find."

San Jose Electric Co. was formerly named the General Vacuum and Washer Co., changing its name early this year when Mr. Reeher became its sole owner.

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Big Radio Drive Planned for Fall

Al H. Meyer, manager L. J. Meyberg Co., San Francisco and Los Angeles, a vice president of the National Radio Wholesalers Assn., has just returned from a national meeting, in which it was planned to launch a large scale sales promotional and publicity campaign involving approximately $1,000,000, this fall.

The idea behind the program is to revive public interest in radio, stimulate the trade to renewed selling effort, and place the radio business in a vigorous competitive position with other industries aiming at the consumer buying market. Manufacturers, wholesalers, dealers and radio broadcasting stations throughout the country will participate.

▼

¶ **Special sales boosters** in the form of a Cleanaire food odor chemical remover, equipped with a thermometer, are to be featured by Westinghouse refrigerator dealers in fall campaigns. The device is to be given to prospects by canvassing salesmen as a part of a follow-up system of calls.

Refrigerator Records Fall in Northern California Campaign

Electric Appliance Society's Sales Drive with Its "Impossible" Quota of $525,000 for One Month Nets $536,000 in New Business, a Gain of 100 Per Cent Over 1933.

WHEN leaders of the recent electric refrigerator campaign, directed by the Electric Appliance Society of Northern California, set a goal of $525,000 in refrigerator sales for the month of May even the most optimistic felt dubious. It seemed impossible to secure such a tremendous gain in business over last year, and yet they agreed they might as well hitch their wagon to a big star as a little one—and so the ambitious figure was established.

When actual sales figures were tabulated, therefore, it was a considerable surprise to find that the sales amounted to approximately $536,000, a gain of some $11,000 over the "next-to-impossible" goal. A total of 3,350 refrigerators were reported sold in May, which were estimated at a conservative retail average of $160 each. Only 2,233 refrigerators were sold during May of last year. Even this tells only a portion of the story since the reports on sales came from wholesale distributors who sold May campaign merchandise to their retailers in April and therefore reported many sales in April which were sold by the retailer in May during the campaign.

The campaign committee modestly points out that refrigerator sales have been on the upgrade all over the country and the society's May campaign should not take the entire credit for this large increase. However impartial observers are of the opinion that the campaign planned and executed by the committee was one of the most outstanding cooperative events of similar character ever held in the West and that it certainly was responsible in large measure for the increase in business enjoyed by the refrigerator industry during the Spring.

With the slogan "The Scotch have a word for it—Thrift. You are paying for an electric refrigerator, why not own one?" the campaign was featured by a barrage of newspaper advertising in 63 newspapers throughout the territory served by the Pacific Gas and Electric Co. For this purpose two advertisements were prepared by the society to provide the list of newspapers with a nucleus for special pages or sections of dealer tie-in advertising accompanied by general publicity material.

The success of this feature was amazing. Dealer advertising managers, newspaper representatives and even clipping bureau executives informed the society headquarters that they had never seen anything to equal the amount of tie-in advertising and publicity secured in this campaign. Refrigerator advertising for the one month amounted to 23,971 column inches, while the free publicity totalled 6,326 column inches. Dozens of papers carried headlines which shouted to the public "An electric refrigerator pays for itself," using news space for this purpose which could not be purchased.

The society's cooperative advertisement listed the trade names of the refrigerators sold by the distributors sponsoring the campaign and newspapers on the schedule were requested not to accept advertising of "outsiders" on the special pages devoted to the campaign. This was only one of the means resorted to by the society in an effort to insure that the business stimulated by the campaign would accrue to those financing it.

Campaign posters for floor and window displays were supplied only to dealers selling appliances of the distributors participating. Approximately 1,500 of these posters, attractively designed in six colors and carrying the campaign theme, were distributed free of cost to retail stores.

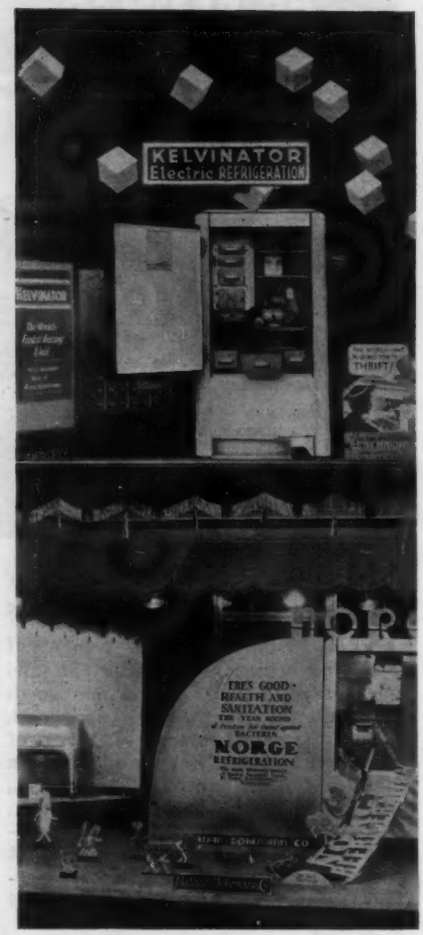
To increase the dealers' interest in planning attractive displays a window trim contest was conducted for which cash prizes aggregating $90 was offered. A committee from the San Francisco Advertising Club, composed of George Tenney, Editor, Electrical West; Miss Florence Gardner, Executive Secretary, San Francisco Advertising Club, and Edward Nelson, display expert, was appointed to judge the photographs entered in the contest by display men from stores located in all parts of northern California. Awards were offered in three divisions, there being only one prize in each division, and were given as follows: Division I (San Francisco and Oakland) Ruud Heater Co., San Francisco; Division II (San Jose, Stockton and Sacramento) John Breuner Co., Sacramento; Division III (other towns) Maxwell Hardware Co., Berkeley.

Dealer interest was also greatly stimulated by a series of meetings held in not only the six units of the Electric Appliance Society but also in other cities and towns. In addition to retail dealers and other interested groups, local newspaper men were invited to these meetings so that they would become familiar with these campaign plans.

A portfolio, completely outlining the entire campaign, for the use of distributors' salesmen, and a series of dealer bulletins were also included in the plan for the preliminary work of informing the entire industry of campaign details and arousing their interest in participation in this big drive for refrigerator business.

Prior to the opening of the campaign Miss Bertha Mae Hixson, educational director of the society, contacted all participating wholesalers after which she carried the message of the campaign personally to retail stores and their salesmen. The Pacific Gas and Electric Co. also aided materially in presenting the campaign message to the dealers through the service of its dealer sales promotion men throughout the entire territory.

Two of the most outstanding features of the campaign were provided through the cooperation of the Pacific Gas and Electric Co. These features were the cooperative floor and window displays in 42 of the company's offices throughout the territory, and the hostess pro-



To stimulate interest in its refrigeration campaign the Electric Appliance Society of Northern California conducted a window display contest that brought in a record number of entries. At the top is the Kelvinator display of the Ruud Heater Co., San Francisco, winner of first prize in Zone I. Below is the Nathan-Dohrman Co. display in San Jose which won honorable mention

grams conducted in 24 of these offices during the campaign period. The cooperative floor and window displays were limited strictly to makes of refrigerators participating in the campaign, each of which was allowed to display one or more refrigerators during the month of May in all the cities in which they were sold by one or more local dealers. Refrigerators for display purposes were furnished by distributors in San Francisco and Oakland and by dealers in all other towns.

The hostess programs were divided into four units, each headed by a "hostess" and each conducted according to a definite schedule, extending from a day to ten days in duration according to the size of the town.

In this plan refrigerators on display were actually in operation and well stocked with food and provision of various types. Hostesses prepared and served frozen desserts and other frozen foods to those entering the office for the purpose of paying bills, securing service and carrying on other business, and it was estimated that this traffic amounted to approximately 250,000 during the month in the offices involved. Recipes for the frozen desserts served, written up in booklet form and containing the names of refrigerators participating, were given away to those attending the hostess programs.

The results of the hostess programs were an outstanding success, many prospects being secured and many actual sales being made for the dealers.

In addition to its aid in sponsoring the hostess programs and the cooperative floor and window displays, the Pacific Gas and Electric Co. devoted its May billsticker, attached to approximately 500,000 electric bills, to the campaign, and carried on an essay contest on refrigerators in "P. G. and E. Progress" with its circulation of approximately 500,000.

During the month of May the Electric Appliance Society sponsored a children's essay and drawing contest held by "Mother Hubbard" of the "San Francisco News." Hundreds of clever entries were submitted by children in various age groups throughout the bay region. Cash prizes totalling $25 were awarded. The judges were K. W. Glasby, president of the San Francisco unit of the Electric Appliance Society, M. J. Suess, of Leo J. Meyberg Co., and Jean Scott Frickelton, advertising agency for the Electric Appliance Society.

The May electric refrigerator campaign was financed by the utility and the distributors of the following makes of electric refrigerators: Apex, Crosley, Frigidaire, General Electric, Gibson, Grunow, Kelvinator, Leonard, Norge, Stewart-Warner and Westinghouse.

Sales records fell, partly as a result of such window displays as these. At the top is the winning window of the John Breuner Co., Sacramento in Zone II and at the bottom that of the Maxwell Hardware Co., Berkeley, winner in Zone III

House to House Sales Outlawed in Cheyenne

The most radical legislation affecting outside selling of electrical goods ever passed in America is law in Cheyenne, Wyoming, following action on July 2 by the city council. Ordinance number 518 declares such selling a "nuisance punishable as a misdemeanor," and fixes a fine of from $25 to $100.

The same ordinance makes it an offense to attempt to obtain an invitation by personal solicitation, or the promise of a demonstration, pecuniary benefit, advantage, or gift.

The ordinance places the responsibility for enforcement upon the chief of police and the police force.

The electrical trade of Cheyenne was thrown into confusion by the unexpected passage of the ordinance. The trade in general had not understood its full scope, believing it to be aimed exclusively at salesmen of foreign concerns. Cheyenne for years has been aggressive in treating the latter with scant courtesy. In fact, during the first half of 1934, under a 1926 ordinance repealed by the present one, over 500 salesmen were "run out" of town. The old ordinance required individuals and concerns selling house-to-house to take out a license costing $100 for each quarter. From the provisions of this ordinance, all concerns paying taxes to Cheyenne city were exempted.

Contacts after passage of the ordinance with prominent factors in the trade, also with the city authorities, indicated an uncertain situation. Several of the merchants declared they would disregard the ordinance, and in the event of prosecution, contest the constitutionality of the measure to the highest courts. On the other hand, the public was taking a hand in the situation, and meeting salesmen at the door with the threat to report to the authorities. The latter would make no statement for publication. It is reported that Rock Springs and Green River, Wyoming, have recently passed similar ordinances, which make no distinction in any way between local concerns and foreign ones.

Warren Currier, sales manager, reports three carloads of refrigerators sold last year, 80 in March this year, and more every month since. I.V. Hardware sells gas refrigerators to bottled gas users off the power lines also. Destert tests radio, and auto radio, too—of which this company sells many. A satisfactory installation there works anywhere better. This hardware chain does a large volume in appliances

Atmosphere

Tested indeed are refrigerators in a clime where the thermometer forgets to stop going up and this year even tank cars of water had to be brought in for drinking purposes. Imperial Valley Hardware Co., with stores in ElCentro, Calexico, Brawley, Holtville, Imperial and Calipatria in Imperial Valley and in Yuma and Somerton in Yuma Valley, Arizona, has capitalized upon the severe testing which desert conditions impose on electric refrigerators to sell many more. H. H. Hovey, advertising manager, utilized a hot desert setting (above) for a sales bringing window. At right is another, with a similar theme—"Brings the Arctic to the Tropics"

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Thrift Idea Will Be Theme of Washer and Ironer Drive

September Campaign of Electric Appliance Society of Northern California Will Feature the Savings Possible With a Home Laundry

IF anyone needed to be convinced of the effectiveness of a mass attack upon the market by the entire industry in one big push, the reports of the successful campaigns of the Electric Appliance Society of Northern California in this and foregoing issues should give ample proof of what can be done. Convinced that this technique is the most effective means for mass selling, at the lowest unit expense, distributors and dealers in electric washing machines and ironers will launch upon the annual campaign of these appliances sponsored by the Society, in September.

B. F. Reynolds, promotion manager, Pacific Gas and Electric Co., and for the society as well, has announced the preliminary details of the program. The salient facts of it are:

¶**The campaign** will be conducted for the entire month of September.

¶**Participating** distributors include those of the following makes of appliances—ABC, Apex, Conlon, Cooper-Tray, Easy, General Electric, Faultless, Ironrite, Norge, Thor, Universal, Victory, Voss, and Westinghouse.

¶**Straight** selling will prevail—with no special price offers. The selling will be based on a direct advertising support of quality lines.

¶**Advertising** will be launched immediately after the Labor Day holidays. As in previous campaigns it will consist of large ads with strong copy, around which dealers and distributors may and should tie in the advertising of their own particular makes and prices. A 48-in. ad will run in 29 newspapers in Northern California.

¶**Dealer display cards** will be provided for window and store trim. Likewise a publicity service will be available to dealers and newspapers for special sections dealing with the campaign.

¶**Theme** and slogan of the campaign will be,

"It's thrifty to own a complete home laundry."

¶**Copy** will tell how the home laundry equipment saves time, labor, clothing, and money to the thrifty housekeeper. In carrying out this idea the savings theme will be used to display the names of all makes of appliances being featured by participating dealers.

¶**A supporting program** of floor display and window displays, cooperatively with the dealers in each locality, will be featured by Pacific Gas and Electric Co. in 60 offices.

¶**Demonstrators** will probably be provided to show and teach visitors to the power company offices the use and savings possible with these appliances.

¶**Anticipating** a successful campaign in all particulars distributors and wholesalers are bringing in ample stocks to serve the trade promptly.

"The strike proved one thing to San Francisco women," said Mr. Reynolds, "and that is that the slogan of the washing machine industry is correct. 'For home laundry, there's no place like home.' A home laundry never goes out on strike."

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¶**Spokane Air Conditioning Show** was staged July 24 to 28 inclusive with a complete display of various types of air conditioning equipment for home, office and factory. Local dealers cooperated in the show with David Knapp as chairman of the committee in charge.

The show was entirely educational, with no sales attempts made from the floor and many types of air conditioning, heating, insulation and ventilating equipment on display.

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¶**Sales far in excess of quotas** have been made by the Washington Water Power Co. and dealers throughout the territory served by the company in electric range, refrigerator and water heater campaigns from April 9 to June 30. Sales were as follows: ranges, 393, 140 per cent of quota; refrigerators, 1806, 264 per cent of quota, and water heaters, 266, 177 per cent of quota. Free wiring was an inducement offered in the electric range campaign.

Garden Lighting . . .

Dressed for the Occasion

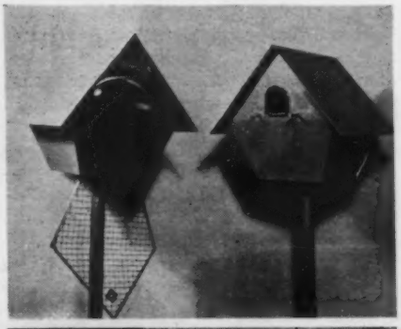
In daytime an attractive bird house (below) atop a mast, at night it floods the garden with moonlight like that at right. A screen keeps the birds from actually using it as a nesting place. Service comes in underground, concealed, unobtrusive

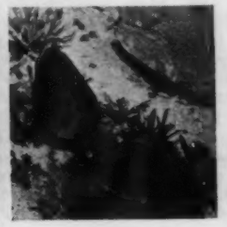
NO longer is there excuse for ungainly iron boxes and conduit stubbs appearing out of Mother-earth in the garden. Gone are the days of hanging industrial types of reflectors over favorite flower beds. Gone are the overhead wires themselves. At least one artistic spirit, F. B. Nightingale, of Los Angeles, illuminating engineer, inventor and magician (the whole three were required), has dressed up electricity so that it can now enter the garden in appropriate dress.

Working with the natural elements found in gardens Mr. Nightingale adapted their forms to the concealment of electrical devices and equipment, combining art with mechanics in an ingenious manner. Aside from the devices pictured here he has developed a spear light, made in the form of a conventional sun-flower, that elevates up to 8 ft., and is in reality a portable floodlight. A leaf midway down the stem forms a tray for cigarettes. The spear tip is for use on lawns or soft soil while the base adapts the lamp to indoor or hard surface use.

Gardens have always been closely associated with romance and moonlight. It is possible to reproduce moonlight at will (you must furnish your own romance). A moon-ray lens when used with an ordinary Mazda lamp produces light the color, quality and intensity of moonlight. The unit is installed in a bird house that harmonizes with its surroundings by day and at night sheds a soft mellow glow over the garden from its concealed source.

For garden outlets a stratified red sandstone rock conceals a 15 amp. convenience outlet connected to a ½-in. conduit in the pull-box base of the device. Where more than one conduit is required, for example, a main line circuit entering and leaving a pull box with a branch circuit in another direction, a larger rock shell is utilized to cover the combination junction box and outlet. This appears as a common gray field rock. In both of these devices the rock shell may be lowered over the attachment plug and cord. This insures protection from the lawn sprinkling system as well as weather conditions.





For those desiring something more exclusive there is a set of mushrooms of natural size, color and appearance. Provision is made in this device for three conduits in the base with ample stuffing box space for splicing wires in the top. The smaller mushrooms are just for atmosphere.

Electrical outlets should be located around our gardens in the same manner that they are found in a home. There should be one near the barbecue pit for the coffee percolator or hot plate to keep the grilled food warm and for lights to better see the food cooking as well as serving. There should be one near the pergola for afternoon teas as well as a reading or dining light for evening. The favorite nook where one enjoys reading or resting best should not be forgotten. A few should be scattered about the flower beds so that the lighting units can be moved from place to place as the various areas of the garden bloom, according to Mr. Nightingale.

Garden lighting should not be thought of as a means of lighting up the back yard so that one may see to run out and pick a few sweet peas or to shoo the neighbors cat off the back fence. The garden should be considered as part of the home, an extended living room filled with interesting lights, shadows and personalities of living, friendly, growing things. It should be lighted each evening in the same manner as the living room, for atmosphere, for enjoyment. Picture windows overlooking the garden should never have curtains drawn.

Above: Wren house unit that sways in the trees, made of sage green or yellow porcelain enamel to be attractive by day. At night it is a floodlight. Center: A prominent Hollywood sculptor designed these mushrooms, which, with the top of the big one lifted, reveals a garden convenience outlet for plugging in lighting units. At left is a stratified red sandstone rock which opens up and discloses a 15-amp. convenience outlet. All of these special devices are designed by Mr. Nightingale and made by his Kim Manufacturing Co.

About Folks in the

Selling Game

Hotpoint Names New Coast District Manager

Harold D. Conklin, formerly assistant general sales manager of the Edison General Electric Appliance Co., Inc., has been named to the position of district manager in charge of Hotpoint range and water heater sales in California, Arizona, parts of Nevada, New Mexico, and Western Texas, with headquarters for the territory, which com-

HAROLD D. CONKLIN

bines two former sales districts, in Los Angeles. Clyde Allen, in San Francisco, and C. N. Willard, in Los Angeles, will work with Mr. Conklin, reporting directly to him rather than to Chicago.

Succeeding Mr. Conklin as assistant general sales manager will be August Jaeger, who will return to the Hotpoint organization from the Electric Cookery Council for which he was regional director. He will work with Pierre L. Miles, general sales manager, from the Chicago headquarters.

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Clarke Reelected Club President

Election of officers of the Vancouver Electric Club resulted in return of T. C. Clarke of the Northern Electric Co. as president. Mr. Clarke took over direction of affairs of the Northern Electric in B.C. at the start of this year and is well known and respected in the trade. R. H. Hedley, head of Neon Products of Western Canada Limited, and holder of many previous offices in the Electric Club, has been elected vice-president.

Howard N. Walters, manager of the Granville street store of the B.C. Electric Railway Co., has been elected secretary, while J. E. Underhill, of the engineering department, B. C. Electric Railway Co. has been appointed treasurer after a term of office as secretary.

The executive members for the ensuing year were elected as follows: J. C. Munro, assistant sales engineer, light and power department, B. C. Electric Railway Co.; J. R. Reid, B. C. Branch manager, Canadian Westinghouse Co.; R. Elgar, Canadian General Electric Co.; C. Morden, Canadian Wire & Cable Co.; H. W. Sellars, Northern Electric Co.; A. C. W. Gage, purchasing agent, B. C. Electric Railway Co.; L. B. Stacey, Packard Electric Co.; R. Hall, manager, Electrical Service League; and A. T. Chambers, Chambers Electric Co., all of Vancouver, B. C.

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¶ **Sales officials** of Electric Bond & Share properties throughout the United States held a two-day conference at General Electric's Nela Park during July. One day was devoted to the "better light-better sight" program and the second day to appliance merchandising. Among the utility men from the Pacific Coast who attended were L. W. Brainard, Idaho Power Co.; D. J. McGonigle and R. E. McDonough, Montana Power Co.; G. H. Wisting, Northwestern Electric Co.; G. E. Davis, Pacific Power & Light Co.; R. M. Bleak, Utah Power & Light Co. and R. B. McElroy, Washington Water Power Co.

▼

¶ **Kenneth Hampton**, salesmanager, and Jim Davis, salesmen of the Valley Electrical Supply Co., Fresno, won the right to a trip to Cleveland and Chicago as guests of the General Electric Co. for their sales efforts in the All Star Discovery Drive featuring ranges, refrigerators, dishwashers and laundry equipment this spring. Only two salesmen and two salesmanagers in the country were eligible to this award.

"Shorty" Sherman Goes With Stewart-Warner

H. E. Sherman, Jr., who has been identified for a number of years with the distribution of radios and electric refrigeration and other home appliances in southern California, and who, until recently, was manager of the California Majestic Company in Los Angeles and, prior to that, associated with the Leo J. Meyberg Co., RCA and Norge distributors, at Los Angeles, has become associated with the Stewart-Warner Sales Co., Los Angeles.

Mr. Sherman will have charge of Stewart-Warner radio and refrigerator sales in the southern California territory. Mr. C. A. Roesch, president of the Stewart-Warner Sales Company, will accompany Mr. Sherman to the forthcoming Stewart-Warner radio distributors' convention in Chicago. Mr. Sherman, better known to the trade as "Shorty" Sherman, contemplates holding a series of dealer meetings in the territory in the very near future for the purpose of setting forth the newly established dealer policies of the Stewart-Warner Sales Co., and for the purpose of introducing the new Stewart-Warner radio line.

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¶ **Evan O. Thomas**, for the past year general sales manager of the Hurley Machine Co., Chicago, maker of Thor washers and ironers, has been elected to the additional post of vice-president. Until Mr. Thomas was called to Chicago two years ago to become assistant to E. N. Hurley, Jr., president of the company, he had been for six and one-half years the Thor distributor for California, Arizona and Nevada, with offices in Los Angeles.

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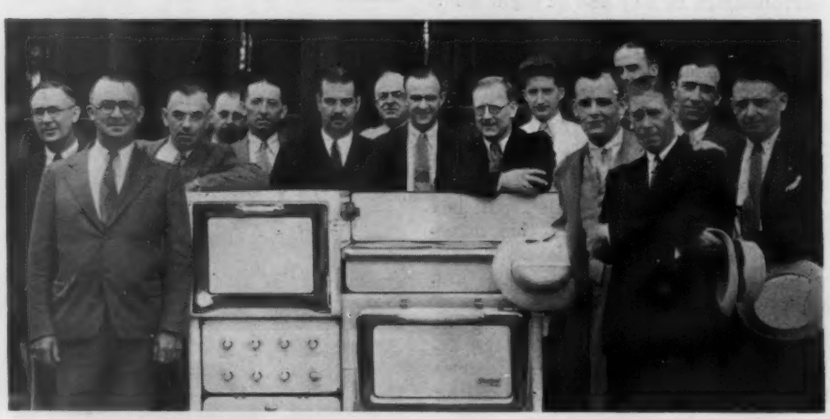
Back to Standard



A young army in itself from the Pacific Coast descended upon the Standard Electric Stove Co., in Toledo, when the George H. Eberhard Co., of San Francisco, sales staff visited the factory. They are seen here surrounding one of the the special jobs just built for a big piston ring tycoon's home. In the picture are Fred Prentice, J. E. Regan, P. F. Goertz, F. M. Bostater, F. J. Brown, V. E. Chamber, P. C. Tiedeman, J. H. Shinberg, H. H. Hansen, F. N. Cuthbert, M. J. Hughes, H. C. Hyland, A. O. Berg, W. W. Nelson, and C. A. Pierson... Standard recently celebrated its 25th year in the manufacture of electric ranges, originating as an electric range company and remaining exclusively in electrics. The West has absorbed a large part of its output and particularly of the large capacity ranges for big residences, in which field it has been almost exclusive.

¶Utility Electric Co. of St. Louis, Mo., have appointed **Montgomery Bros.**, San Francisco, Calif., as their representatives for the entire area west of the Rocky Mts. The Utility Electric Company's line of appliances includes "Toastwell" electric toasters and a new hostess tray which was recently introduced to the trade.

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¶**Orders for Hotpoint** electric ranges for the first four months of 1934 were five times those for the same period last year and exceeded the total business for the year 1933 according to Pierre L. Miles, general sales manager of Edison General Electric Appliance Co., Inc. Sales were 30 per cent ahead of quota, he reported, thus indicating a definite public trend toward electric cookery.

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¶**Clyde L. Chamblin,** 639 Mission St., San Francisco, has been appointed the distributor for Northern California for the Anderson-Pitt line of electric spot heaters, known as Folcalipse, as well as the company's infra-red Juven-Ray health lamp.

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¶**Charles D. Olive,** of the refrigerator division, Stewart-Warner Corp., was a recent visitor to the Pacific Coast, holding meetings with R. J. Lawrence, Pacific Coast representative of the company.

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¶**R. B. Wilson,** president of the Electric Vacuum Cleaner Corp., and the Premier Vacuum Cleaner Co., of Cleveland, Ohio, visited various Pacific Coast merchandising centers during July.

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¶**N. L. Bost,** Northwest representative for the National Electrical Products Corp., has moved his offices from the Terminal Building to 7112 Textile Tower, Seattle.

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¶**Colvin Templeton, Inc.,** distributors and dealers in Westinghouse electric refrigerators in San Francisco and bay area started its summer refrigeration drive with an 8-page newspaper, "Kitchencraft" of which 330,000 copies were distributed to homes in its region.

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¶**H. C. McDaniel,** formerly with the Pacific Power & Light Co., at The Dalles, Ore., is now connected with the Central Illinois Public Service Co., at Springfield, Ill.

▼

¶**Because of incomplete data,** M. L. Fowler, southern California representative of Benjamin Electric Manufacturing Co., was incorrectly announced in a recent issue of Electrical West to have joined the Proxy Service Service Co., at 122 East Seventh St., Los Angeles. Mr. Fowler is making his headquarters at this address, but remains the Benjamin representative, according to Miles F. Steel, Pacific Coast manager.

New Lines *You Can Sell*

Cabinet Dryer

General Electric Co., Merchandise Department, Bridgeport, Conn., has produced a new laundry cabinet dryer by means of which the entire contents of an 8-lb. washer can be dried at one time and ready for ironing in less than an hour. The dryer is a complete unit, providing clothes rods to hold garments, heat to dry them and fan-forced circulation to insure thorough drying in the shortest possible time. Exterior is finished in white lacquer and the interior walls are of heavy gage rust-resisting galvanized metal. Motor, blower and heating elements are contained in a separate space at the base of the cabinet. Heating unit consists of six 500-watt strip heaters and heat is distributed throughout the cabinet by a blower driven by a ¼-hp. motor.—Electrical West, Aug., 1934.

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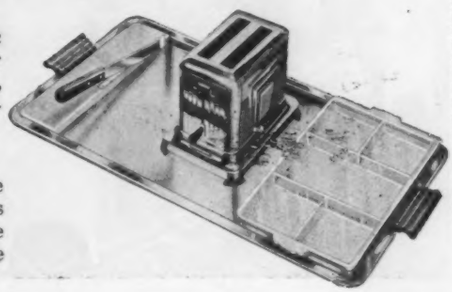
Hostess Tray

Utility Electric Company, St. Louis, Mo., has brought out a new luncheon combination consisting of a Trichrome finished tray, one-piece, five-compartment crystal glass serving dish, and an electric toaster. A feature of the ensemble is the handy cutting board complete with a detachable knife which makes sandwich preparation easy. List price ranges from $7.50 for the tray and accessories alone to $16.25 for the combination with an automatic toaster.—Electrical West, August, 1934.



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Wringerless Washers

National Metal Products Co., Waterloo, Iowa, has placed on the market a wringerless type washer which employes a safety pressure drier which removes surplus water from clothes by squeezing in a rubber container to which city water pressure is applied. An additional feature is a regulator switch that permits setting for the time required for each tubful of clothes, after which the washer stops automatically. The washer has no gear case, reversing mechanism nor clutch. List price is $99.50.—Electrical West, Aug., 1934.

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New Haag Washers

Haag Bros. Co., Peoria, Ill., has announced a new line of washing machines incorporating several new features, including a mechanical hand designed to feed clothes through the wringer without the operator's hands coming near the revolving rolls. Model 62 is the largest size practical washer with tub of everlasting porcelain on heavy Armco iron. Cushioned power is transmitted from self-lubricated motor through precision cut worm and chrome nickel worm gear. It is finished in sand grey, black and polished aluminum. There are two other models in the line.—Electrical West, Aug., 1934.

Adapter Lighting Unit

Smoot-Holman Co., Inglewood and San Francisco, Calif., announces a new porcelain enameled adapter tility unit, knownu as catalog No. 624. It has a porcelain enameled adapter with glass enclosing globe. Especially designed for Western utility lighting campaigns, the complete fixture can be screwed into existing lamp sockets in kitchens, bathrooms, or similar locations. It uses a 150-watt lamp and lists at $2.15.—Electrical West, Aug., 1934.

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3-Light Indirect Lamp

Incandescent Lamp Department, General Electric Co., Nela Park, Cleveland, Ohio, has developed a new three-light lamp for use in portable indirect lighting units. The lamp permits of three levels of illumination, depending on whether the 100-watt or 200-watt filament or the two in combination is used. The new bulb is designed for burning in a base-down position but is not adapted to present type of fixtures and requires newly designed equipment. A number of fixture manufacturers are proceeing with designs and plan to introduce lighting units employing the new lamp within the near future.—Electrical West, Aug., 1934.

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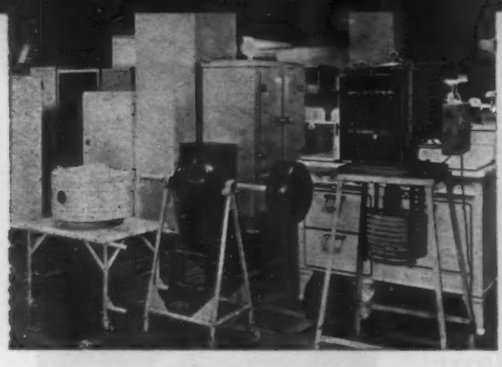
Westinghouse Dishwashers

Westinghouse Electric & Mfg. Co. Merchandise Division announces its entrance into the dishwasher field with the introduction of four models incorporating several new features. The line is comprised of one cabinet and three portable machines. Dishes are washed for five minutes in hot soap suds, double rinsed and thoroughly dried by evaporation. Interior of the dishwashers is self-cleaning with the water pumped from the dishwasher into the sink by a centrifugal pump. Capacity of three of the models is 55 pieces of dishware and 40 pieces of silver at one time.—Electrical West, Aug., 1934.



BULLOCK'S in Los Angeles staged an exposition of approved appliances in cooperation with the Bureau of Power & Light in July. Left: a display contrasting old and new G. E. refrgerators. Center: Grid glow tube fortune teller trick by Westinghouse. Right: Virginia Vincent bakes a pie in 26 year old Westinghouse wood frame range

The Month • Commercial and Sales - -

IDAHO POWER's president K. M. Robinson at the recent E.E.I. convention, was presented by George A. Hughes, the national award bearing his name for the best company achievement in electric range selling last year. L. W. Brainard, commercial manager, had presented a remarkable record of both organization and sales for both company and cooperating dealers. More particulars will be published in a later issue

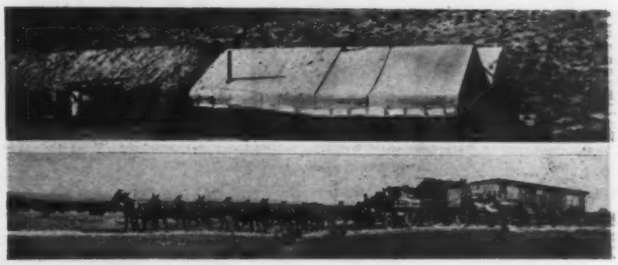
CAPWELL'S of Oakland had this attractive appliance display at the Post-Enquirer Electrical Exposition during the No. Calif. Electric Appliance Society campaign on refrigerators last month

OUTDOOR living room, created by a moonlight colored floodlight at the eaves, with a golden spot of local light from the Morning-glory lamp fastened to the pole of the umbrella, converting it into a mushroom of light. Around this the activities of the gathering center. Lighting, intelligently and artstically applied, adds the garden to the living quarters of a western home

KITCHEN of the remodeled Denver shack shown on the opposite page, was all electric, with range, refrigerator and exhaust fan. Modern lighting fixtures, Red Seal Wiring convenience, nofuse load center, yard lighting outlets, chimes — all went to show how electricity modernizes even a 50-year old house

CONTRAST the mess halls of today's Metropolitan Aqueduct, (above) with complete electric cooking, preparing and refrigeration equipment, and (right, above and below) the mess hall on the Owens Valley aqueduct in 1913, with dirt floors, oleomargarine sign, coal oil lamps and heat! Transportation too, was by 14-mule team instead of trucks and tractor, according to General Supply Co., which furnished these pictures. Refrigeration on the Owens job was a water cooled dripping burlap "cooler." No wonder labor troubles resulted from poor food. Today's camps, with air cooled dormitories and mess halls make contented crews

in Pictures
•
..Engineering and Construction



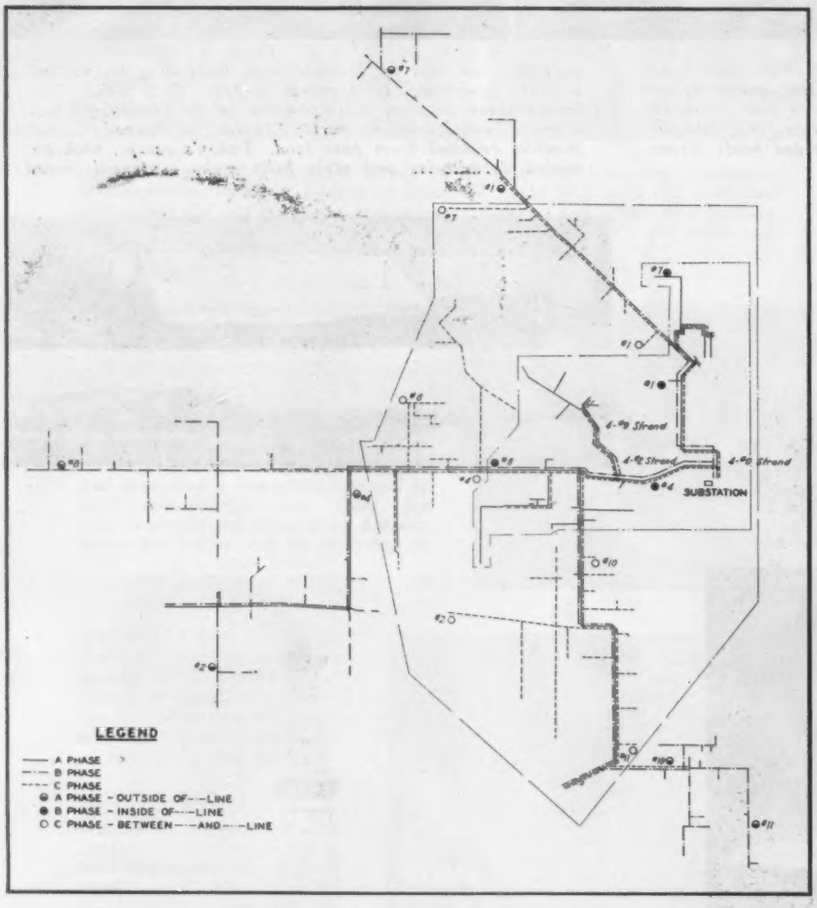
FIREMAN'S HAT translated into luminous glass and steel by the artistry of Ted Neal's staff at Luminous Structures, Inc., Los Angeles for new Long Beach station

WORLD'S DEEPEST—11,377 FT. General Petroleum's Berry No. 1 at South Belridge Field was drilled with standard electric oil-well rigs. Another record for electric operation

RE and after Denver's modernizaews took over a 50-year old shack

PRINT IN BINDING

Engineering of the Month



Phasing and regulation map showing areas served by various phases and voltage test points for each phase for a typical primary feeder

Application of Induction Regulators to Distribution Feeders

By J. F. EMERY
Idaho Power Co., Boise, Idaho

Use of induction regulators is becoming common practice on most systems. Instead of a special piece of apparatus, they are today taking their place as indispensable pieces of equipment. Proper application of regulators for best operation however, requires careful study and maintenance

APPLICATION of induction voltage regulators varies as widely as the physical and electrical conditions of the systems on which they are used. Regulators can almost perform miracles in improving service, but to do this they must be properly applied and their proper application maintained. This discussion will be concerned with the conditions under which regulators operate, their economic justification and their proper adustment to the lines which they are to serve.

Load and operating characteristics of the Idaho Power Co. system are such that regulator application has been feasible in many instances. Major power customers consist of irrigation pumping plants, flour mills, cement plants, railroad yards, mining loads and small industrial plants. Bulk of this load is served by individual substations from the transmission system. Power customers account for 32 per cent of the kw.-hr. sales; urban residences, 22 per cent; commercial 19 per cent; rural 14 per cent and other customers 19 per cent.

Aside from being seasonal, the power customers have a good load factor, and it would be expected that the transmission system could be adjusted for the fixed voltage drops caused by this load. Interchange of power with other systems and the occasional operation of a firm power plant as a peak load plant badly disrupts this scheme.

Residential and rural customers use 36 per cent of the kw.-hr. sold. Of these customers, 45 per cent have electric ranges, and 15 per cent have electric water heating installations. While the load curve of this group of customers is excellent when compared to the curve of straight lighting and small appliance users, nevertheless it does have some very pronounced peaks.

Some compensation can be applied at the power plants for the transmission voltage drops under peak loads, but the physical relation of the substations to the plants, and the voltages that must be maintained for the proper flow of power limits this to a large extent.

Distribution systems in the cities and towns served were originally constructed to care for the needs of lighting and small appliance customers. The heavy range and water heater saturation that has been built up since has in many cases rendered the original system inadequate, and has necessitated larger copper and the complete rebuilding of the system. In most instances, however, the smaller copper would only be replaced on a portion of the feeder; generally that section nearest the substation. This frequently left a feeder on which the regulation was very poor.

The basis of this rural electrification was the building of extensions on existing lines. As the new customers were required to make guarantees and deposits proportional to the cost of the line, it was not feasible to ask them to stand the cost of copper larger than that required to serve them. Continued extensions resulted in many long lines with much smaller copper or lower voltage than would be required to give good regulation. This was particularly true of the earlier extensions before it was realized how far the rural lines might run or be loaded.

The high range concentration on the system requires that the voltage be held up during range peak loads. Electric ranges will not function satisfactorily on low voltage. Experience has shown that a drop of 6 volts below the normal rating of the element will cause unsatisfactory service and complaints from the customers. This determines the low point in residence customers' voltage. The high point is largely determined by the permissible rate of lamp burn-outs.

General conditions having to do with this study may be summarized as follows:

1. A substation bus having very poor regulation and a drooping characteristic under load.

3. Long distribution lines, becoming more and more heavily loaded, with insufficient copper to hold voltage drops within small limits.

3. Requirement that voltage be maintained under peak load conditions for the satisfactory operation of heating devices, particularly ranges.

First point to be determined in attacking such a problem is whether improved substation bus voltage, additional copper, higher distribution voltage, or induction regulators are the most economical solution. Calculations will demonstrate in many cases that regulators will be much the least expensive correction.

This is apparent, when it is considered that additional transmission lines to stabilize bus voltages must be 50 to 150 miles in length. This, of course, would solve only half the problem, and it would still be necessary to replace considerable distribution copper with that of a larger size. There would be on any system many cases where larger distribution copper would be necessary; but, in most instances, it would be supplemental to and not in place of regulators.

Voltage drop in secondaries and distribution transformers always plays a large part in building up the overall regulation of a distribution system. A distribution line controlled by regulators can be arranged to have a rising characteristic when the load is increased. A large amount of money may be saved by eliminating the necessity of changing to larger secondary copper and transformers.

Purchase and installation of regulators are only the first step of the correction. The second step involves a very thorough survey of the feeder and an adjustment of the regulator so that it operates at a maximum advantage.

A few feeders have their load concentrated at the end, and they are, therefore, ideal for regulation. Regulation in these cases consists simply of adjusting the line drop compensator to equal the constants of the line; and, therefore, presents no special problems.

The majority of feeders, however, will be complex in nature, and may have customers along their entire length. This is the type of feeder that presents a real problem.

Preparation of a map showing the entire feeder is the first step in the regulation study of such a line. It should be made on a scale large enough to show the physical reaction of the phases. It should also provide room for notes regarding the load and any special conditions peculiar to the feeder. The next step will depend upon the voltage of the feeder. On 2,300-volt delta systems the feeder should be carefully checked for balanced load; and, if necessary, should be reconnected to obtain a balanced condition. On 4,000-volt systems it is this company's practice to regulate each phase to serve lighting and cooking customers in certain areas. A survey of the feeder is made, and it is divided into zones according to the load and the distance from the substation. All lighting and cooking transformers are then reconnected, if necessary, to the phase that is to serve that area.

It is realized that this method of operating a 4,000-volt feeder results in larger voltage drops and losses since existing copper cannot be fully utilized. This drop, however, appears between the substation and the first customer and can be compensated for fully. The drop between the first and last customer in an area is small. Thus, good regulation can be maintained.

The next step is the determination of the load on the feeder. Indicating instruments may be used for this purpose, but recording instruments are recommended. The meters should be allowed to run for about three days so that a good picture of average conditions may be obtained. If radical differences are shown during a three-day run, additional charts should be taken until average conditions can be definitely established.

If the feeder is simple in nature and has its load concentrated at a few points, the voltage drops may be computed. If the feeder is complex in nature, however, better results can be obtained by actually measuring the voltage drops in the feeder by the use of recording instruments. When voltage charts are taken, they should be obtained at the same time as the load curves.

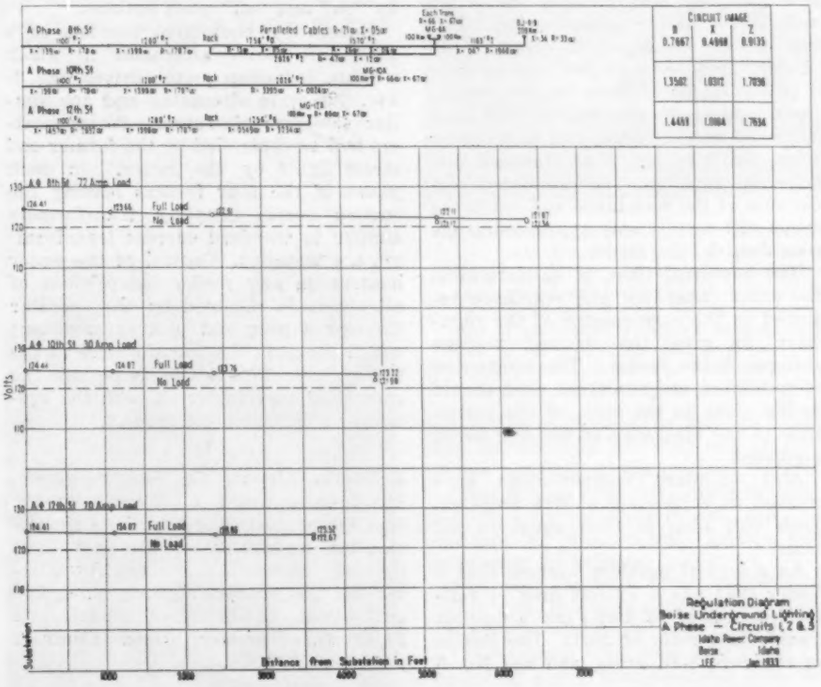
Load centers or voltage test points must next be located. The aim is to give the best possible regulation to the greatest number of customers. As the voltage charts at load centers are the guide to voltage conditions and the basis for regulator adjustment, it is essential that each voltage chart represent about the same number of customers. Thus, when a study of the charts is made to determine the best regulator adjustment, each chart has the same importance, and can be given the same consideration. This is the only basis on which it is possible to be sure that the best regulation is being given to the largest number of customers. It is also the only way by which to determine a true picture of feeder conditions.

To obtain a true voltage drop curve of a feeder, it will be necessary to have more meters located in the heavily loaded areas where the larger drops occur, than in the lightly loaded areas. This will automatically be taken care of if the customer basis is used.

In this company's early work it was standard practice to make one load center on each phase. The regulators were adjusted to compensate for voltage drop from the substation out to this load center. Practically constant voltage was then maintained at this center. On later work it has been found necessary to have more than one load center on each phase, as extreme high or low voltage might exist on the feeder that would not be shown by a single load center.

While the installation of potential transformers to operate the test meters is desirable, they are by no means a necessity. Where the cost of such equipment is prohibitive, satisfactory results can be secured by placing meters on secondary wires serving a customer from a separate distribution transformer. Small distribution transformers of one-half or one kva. also make excellent potential transformers for this purpose.

Typical regulation diagram prepared after voltage tests for use in setting induction regulators



After the voltage drops are obtained, a regulation chart is prepared. The basis of the regulation chart is simply the plotting of voltage drops against distance. Charts may contain only primary drop curves, or they may show both primary or secondary regulation. The set-up on the curves will depend entirely upon the nature of the feeder.

Throughout this discussion primary voltage is reduced to terms of secondary voltages for easy comparison, i. e., primary voltage divided by twenty is used.

In preparing the regulation chart, it will first be necessary to establish three voltage limits:

1. Highest voltage a customer may be subjected to during peak load.

2. Lowest voltage a customer may be subjected to during peak load.

3. Highest permissible light load voltage.

The highest permissible voltage during peak loads will be determined by the detrimental effect of excess voltage on lamps, radio tubes, and heating elements. This is something that must be determined by experience. Our present limit during peak loads is 127 volts at distribution transformer secondary. Nominal voltage on the system is 120; 120-volt lamps and 115-volt heating elements are standard on the system. This limit of 127 volts may sound high, but it should be remembered that secondary and house wiring regulation will reduce this voltage at the appliance. It also only exists for a period of about one hour a day. This limit has been in use a sufficient length of time to demonstrate that it is not excessive.

The lowest permissible voltage during peak loads is determined by the performance of heating elements, especially on electric ranges. Again, experience is the guide, and it has been found that a 115-volt element must be supplied with at least 109 volts for satisfactory service. Thus, allowing six volts for total secondary regulation, the primary must not fall below the equivalent of 115 volts.

The highest permissible light load voltage is limited by lamps and radio tubes. The effect of continued overvoltage on both items is well known. In the light of this data, we have decided upon 123 volts as an upper limit during light load periods. It is obvious that for the many hours of light load a lower voltage limit might be maintained than would be permissible on short peak loads.

Knowing the voltage drops and voltage limits, the next step will be to determine transformer tap settings. The tap settings will, of course, be dependent upon voltage drops. This is a "cut and try" procedure, as placing transformers on taps also means a different base voltage. The best adjustment may be easily determined by setting up a primary drop curve and secondary curves with transformers on different taps. This will make it easy to visualize what taps transformers should be on in the various areas for best results.

The necessity for placing transformers on taps will be determined by the first customers on the line. Experience has set 127 volts as the maximum peak load voltage. This, then, limits the compensation that can be applied. If the voltage drop on the remaining part of the line is then so great that it is impossible to maintain the minimum peak load voltage of 115, it will be necessary to place those transformers toward the end of the line on taps.

The base voltage will be regulated by the transformers on the lowest taps. For example, assuming that there is a negligible voltage drop on the feeder at light load, and setting the maximum light load limit at 123, the base voltage, using standard 2,300-volt transformers, will be:

Transformer Ratio	Base Voltage
20:1	123.0
19:1	116.8
18:1	110.7

Actually, of course, when using 20:1 ratio transformers on a feeder, a base voltage of 120—the nominal voltage of the system—would be used.

It is immediately evident that the use of transformer taps necessitates low voltage on part of the feeder during a light load period. This is undesirable, as it means some loss of revenue and the customer is not receiving the lumens per watt that he should from lamps. It should not be construed that this form of regulation is responsible for a loss of revenue, as the increased Kw.-hr. sold as a result of maintaining voltage during peak loads will more than offset that lost during light loads. Lighting customers, however, are more interested in lamp life than they are in lamp efficiency.

After determining the load and voltage drop, the next move is the actual adjustment of the compensator. This can become needlessly involved. Tests of lighting feeders on this system show a power factor of from 78 per cent at light load to 90 per cent at full load. With this power factor, and with copper from No. 0 to No. 6 at standard distribution spacings, the calculated vector sum of the resistance and reactance drops will very closely approximate the true drop in the feeder.

The problem, then, is to determine the ohms resistance and reactance required on the compensator of the regulator to give the desired voltage changes in the feeder. The proportion of resistance and reactance used should be the same as the ratio of the resistance to the reactance of the line being regulated.

All standard compensators are marked in volts drop at five amperes. Each volt step is then equal to 0.2 ohms.

As a typical problem, assume that a feeder that has a 12-volt drop, a full-load current of 92 amp., and a current transformer ratio of 20:1. The line is on standard 8-ft. arms, and has No. 6 copper. The ohms resistance will be 2.143 per mile, and the ohms reactance will be 0.810 per mile, or a ratio of 1 to 2.64. Ninety-two amperes, then, divided by 20, the current transformer ratio gives us 4.6 amp. in the secondary circuit flowing in the compensator.

Dividing 12, the voltage drop required, by 4.6 amperes, gives 2.6 ohms impedance. This will be equal to the square root of the resistance squared, plus the reactance squared. As the resistance is to be 2.143 times the reactance, the equation becomes:

$$\sqrt{^2X + (2.143X)^2} = 2.6 \text{ ohms.}$$

$$X = 1.1 \text{ ohms.}$$

$$R = 2.143 \times 1.1 = 2.3 \text{ ohms.}$$

After the compensator has been adjusted to this resistance and reactance setting, and the contact-making voltmeter set, voltage charts should be taken. Such a check will often show where slight modifications in the adjustment may be beneficial. After final adjustments have been made the chart should be filed for future reference.

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Carrier Current Controls Off-Peak Water Heaters

Installation of a carrier current control system for the operation of off-peak water heaters and street lighting on the system of the Idaho Falls, Idaho, municipal power system was completed shortly after July 1, 1934, according to an announcement by the General Electric Co. Purpose of the installation is to secure a higher system load factor.

Standard G.E. type SCS-5F-1 carrier controllers are being used for both installations with a closing impulse of 10 sec. duration and an opening impulse of 30 sec. duration. The impulses are automatically timed by relays actuated by "on" and "off" push buttons.

Generating equipment consists of a three-unit motor alternator in which a 5-hp. induction motor drives one 3-kw., 720-cycle alternator and one similar 480-cycle alternator. Water heaters will be controlled by the former and street lights by the latter. In each phase of the four feeders leaving the station series coupling transformers similar to standard current transformers are installed. Control of the water heaters on any feeder independent of all others is obtained by the operator through a plug and jack arrangement which connects the transformers to the transmitter. This flexibility permits the control of load factor on both the system and on individual feeders.

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¶Severin Electric Co., San Francisco, has been awarded a contract by the San Francisco Public Utilities Commission for the installation of a new street lighting system on Potrero Ave., involving 138 bracket lighting units, 140 pull boxes, 17,500 ft. of conduit and 37,000 ft. of primary cable. Contract price was $30,876.

Utility Tests Transite Conduit

Tests made by a California utility in the presence of engineers of the state Railroad Commission indicate that the new Transite conduit recently announced by Johns-Manville has some interesting engineering features. Several installations, notably the Third St. bridge in San Francisco and the new fire alarm system in Fresno, Calif., have been made, some of which are shown in the accompanying photographs. The new conduit is also being used on some sections of the Golden Gate and San Francisco-Oakland bridges.

Composed of asbestos fiber and portland cement, the new conduit is built up on a polished steel mandrel which imparts a smooth interior surface. The addition of asbestos fiber makes it much stronger than ordinary concrete as well as being incombustible and highly resistant to corrosion, electrolysis and chemical action.

Its installation is interesting because threaded couplings are not used. Rather each length is provided with a taper of a few inches on each end which slips into a tapered sleeve coupling, the joint being made water-tight by dipping the coupling in a good insulating asphalt base paint.

Electrical characteristics, as shown by the tests (detailed reports available at the California State Railroad Commission), show that a dry 2-in pipe with a wall thickness of .34 in. punctured at 41 kv. After 48 hours of immersion in water the puncture voltage was reduced to 38 kv. Conduit with thicker walls required correspondingly high voltage to puncture. Water absorption tests showed that practically no water will be absorbed by the pipe under ordinary conditions of exposure. Samples of the pipe were immersed in water 48 hours and showed no change in weight when weighed out to .001 kg. After a total immersion of 28 days the average moisture content was less than one-quarter of one per cent of the original weight.

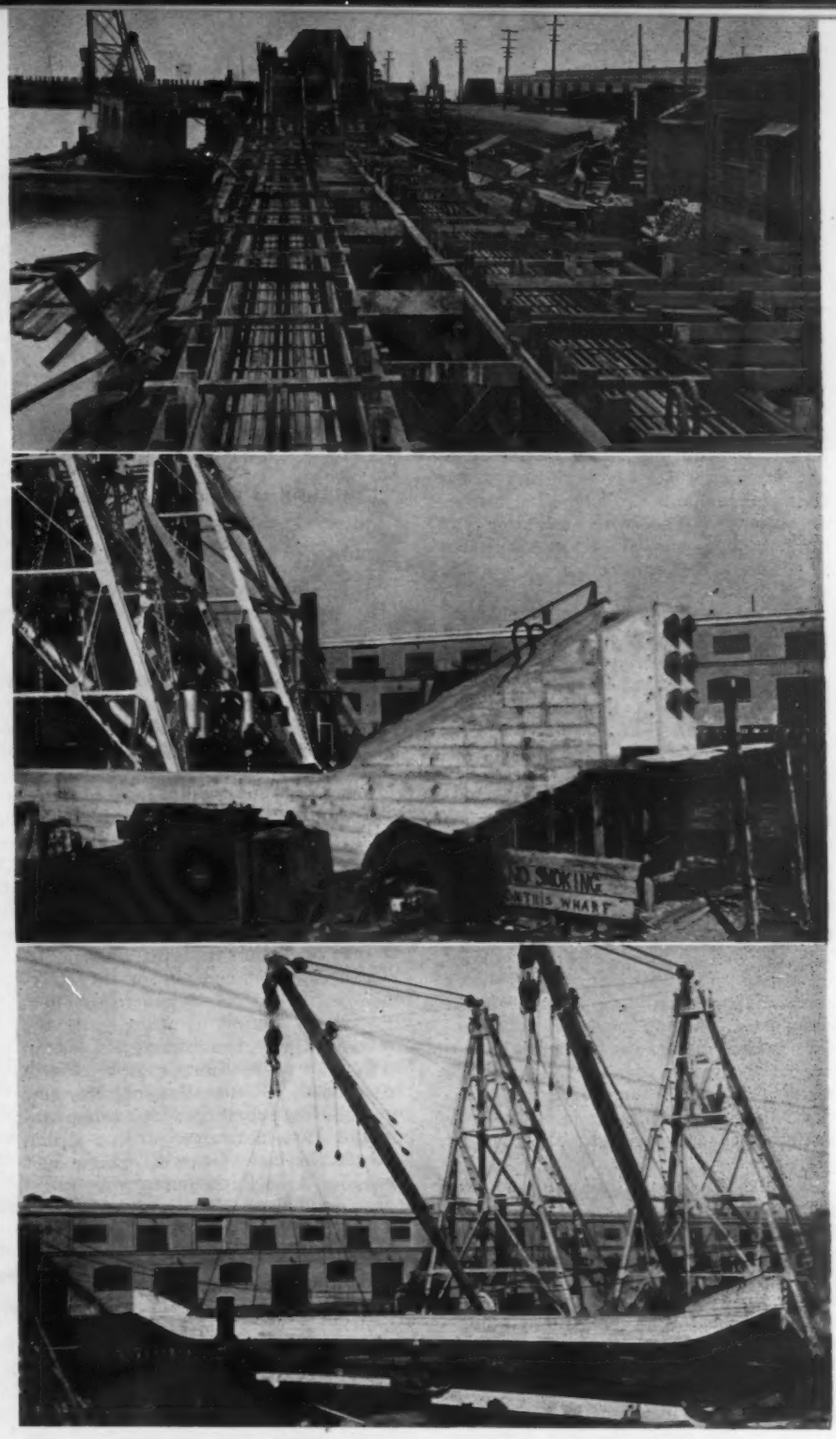
Compression tests were made by placing the pipe between plates and increasing the pressure until failure. Results were as follows:

2-in. pipe specimen failed at 3,880 lb.
3-in pipe specimen failed at 3,120 lb.
4-in. pipe specimen failed at 2,630 lb.

Compression tests were also made by wrapping a guy wire around a 9-in. diameter pole and over a section of transite pipe, the pole being at a 45-deg. angle to the pull, as in standard line construction practice. Increasing pull on the guy cable was made until failure of the pipe which broke at 3,770-lb. pull.

Tests were also made to see if linemen's spurs could cause possible damage. Footholds could not be obtained with ordinary "spiking" and it was found that the pipe would not be damaged under ordinary conditions of climbing service.

Conduit was installed directly in the ground for the new Fresno, Calif., fire alarm system. Eliminating the need for a concrete envelope is claimed to reduce the cost of underground distribution materially



Transite conduit was used for carrying the 11-kv. cables of Pacific Gas and Electric Co. from Station A to downtown substations under China Basin when the new Third St. lift bridge was constructed recently in San Francisco. Top photo shows conduit and reinforcing steel in forms prior to pouring concrete in constructing the two beams which were placed beneath the water surface. Center photo shows one end of one beam with 5-in. conduit sections protruding. Method used in lowering one of the completed beams to the channel bottom is shown in the lower photo. Underwater cement was used in joining the beams to the bridge retaining walls and the conduits were then brought into manholes at each end of the bridge.

Added Investment Pays Dividends In Lowered Pumping Costs

By S. E. GAMBLE

Westinghouse Electric & Manufacturing Co.
Emeryville, Calif.

California Reclamation District No. 1500 Modernizes Pumping Facilities With a New Low-Head, High-Capacity Plant Which Saved $92,464 in Three Years' Operation

EFFICIENTLY handling large quantities of water at low head from reclaimed or low land is a problem which confronts all hydraulic engineers. Pumping costs, in which energy charges are major items, become of paramount importance during times when taxes and farming costs are high and prices for farm products are low. The farmer on reclaimed land, with irrigation and drainage uppermost in his mind, desires to see the water charge per acre as low as possible.

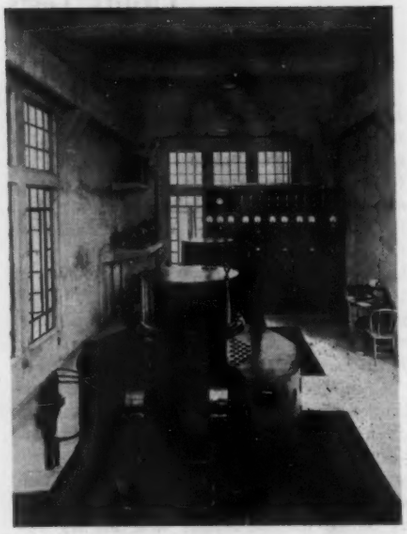
Typical of the manner in which modern equipment may be applied to improve operating conditions and lower pumping costs is the installation made three years ago in the Sutter Basin, Sutter County, Calif., cost figures on which are now available. This tract of approximately 120,000 acres located in the center of the rich Sacramento Valley agricultural district was reclaimed approximately 30 years ago by private capital establishing its drainage under the state laws as Reclamation District No. 1500. Reclaimed lands are very fertile and produce diversified crops. The district is practically surrounded by the Sacramento River, which, before reclaiming and building of levees, was overflowed most of the year. It therefore became necessary to install pumping equipment to handle the drainage water the year around with the quantity varying considerably from the irrigating season through the winter season.

In 1915 the first drainage pumping plant was installed at the lower end of the main drainage canal and discharged water into the Sutter bypass, which, in turn, flows into the main Sacramento River. The original plant consisted of six 50-in. horizontal centrifugal pumps driven by an 800-hp. induction motor. While the elevation of the water in the main drainage canal is a large factor in the cost of pumping (the higher the water in the canal the less pumping head and consequent less energy demand being required to pump the water in to the Sutter bypass), no control can be maintained over the elevation of the water in the Sutter bypass. Inasmuch as the water level in the latter aqueduct varies from 11 ft. during the summer low water to 39 ft. in the flood water stage of the Sacramento River, and as the original pumping plant was designed to pump against maximum high water, pumps were operating at a high head at all times irrespective of the water level in the drainage canal or in the Sutter bypass with only one result, high power costs and poor efficiency for the installation.

In the fall of 1928 J. Crowley, district engineer, investigated the cost of a low-head pumping plant located in the same vicinity as the original plant with the idea of handling drainage water at the lower heads for the bypass was very inefficient. The economies of such a plant were very apparent and as a result the low-head plant was built and put into operation in June, 1929.

The new plant consists of three Byron-Jackson 48-in. vertical propeller-type wet-pit pumps discharging in the direction of flow, thus saving the loss in head of elbows in piping compared with the old type "S" installation. The new pumps, being submerged, are self-priming and have no valves except a flap valve in the end of the discharge duct (see Fig. 1). Each pump was guaranteed to deliver 100 sec.-ft. of water against a head of 8 ft., and a speed of 277 r.p.m. and to pump at heads of from 1 to 17 ft.

Each pump is driven by a Westinghouse vertical line start synchronous motor rated at 200 hp., 2,200 volts with a 100 per cent power factor. The motors are designed to give a starting torque of 50 per cent, and a pulling torque of 100 per cent, a pull-out torque of 150 per cent, and are capable of carrying an external thrust of 25,000 lb. each. Suitable control, motor-generator sets, and other auxiliary equipment were supplied for their operation.



Two of the three synchronous motors which drive the pumping units in the new low-head plant. Push-button control, across-the-line starters and motor-generator sets for supplying excitation may be seen in the rear of the room

Table I—Comparison of Costs

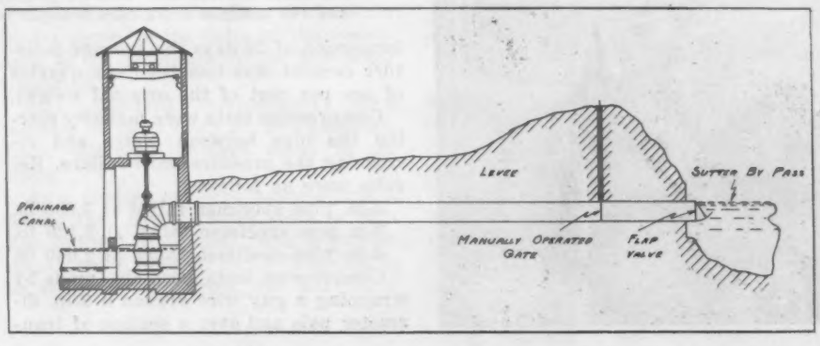
Old Pumping Plant

	1926-1927	1927-1928	1928-1929	Total	3-yr. Av'ge
Kw.-hr. consumed	6,456,000	5,940,000	5,268,000	17,664,000	5,888,000
Demand charge	$11,508.14	$ 9,924.60	$10,608.00	$ 32,040.74	$10,680.25
Energy charge	40,539.90	37,105.41	33,689.07	111,334.38	37,111.46
Total charge	$52,048.04	$47,030.01	$44,297.07	$143,375.12	$47,791.71

Auxiliary Pumping Plant

	1929-1930	1930-1931	1931-1932	Total	3-yr. Av'ge
Kw.-hr. consumed	2,233,000	954,000	2,040,000	5,227,000	1,742,000
Demand charge	$ 7,569.25	$ 4,033.81	$ 5,086.47	$16,689.53	$ 5,563.18
Energy charge	15,006.06	6,380.49	12,834.34	34,220.89	11,406.96
Total charge	$22,575.31	$10,414.30	$17,920.81	$50,910.42	$16,970.14

Total saving in last three years.....$92,464.70 or 64.49 per cent



Cross-section of the low-head pumping plant of California Reclamation District No. 1500 showing the relation of the drainage canal and the Sutter bypass into which drainage water is pumped from the reclaimed land

Comparative costs for the three years of operation from June 3, 1929, to June 3, 1932, with the three-year period from 1926 to 1929 prove the wisdom of making the investment in the low-head pumping plant. These costs are shown in Table I.

The operating conditions during the two three year periods used for comparing the costs of pumping were practically the same as to rainfall, although the quantity of water pumped during the period from June, 1926 to June, 1929 was approximately 20 per cent greater than the period from June, 1929 to June, 1932, due to the amount of irrigating water used by the rotating of crops; also some gravity flow during extreme low water in the Sutter bypass.

Table II shows the amount of water pumped out of the district, total pumping hours, cost per hour to operate the pumps and cost per acre-foot of water pumped.

Table II — Three-Year Comparison

	Period	
	June 1, 1926 to June 3, 1929	June 3, 1929 to June 1, 1932
Cost of power (demand and energy)	$143,375.12	$50,910.42
Pumping hours	$34,500.50	$31,926.00
Cost per hour	$4.16	$1.59
Total acre-feet pumped	356,350	297,523
Cost per acre-foot pumped	$0.402	$0.171
Gravity flow—acre-feet	2,023	27,741

The greatest proportionate saving in pumping costs is made during the summer season, when the water in the Sutter bypass is below El. 18.0 This is due to the design of the old pumping plant, wherein all water pumped must be raised to El. 26.33, the center line of the 50-in. pumps, regardless of the elevation of the water in the bypass. This causes a large waste of power when the water is below that elevation. Static heads during the three years, or from June, 1929, to May, 1932, were not very dissimilar from those of the preceding three-year period, as shown by the number of days the water in Sutter-by-pass was below El. 18.0. For the three-year period, 1926-1929, the average number of days in which the elevation in the Sutter bypass was below 18 ft. was 233; for the three-year period 1929-1932, 256 days.

Yearly savings in the cost of pumping for each of the three-year periods as compared with the average yearly cost of pumping for the preceding three years, which was $47,791.70 per year, are as follows:

Cost of pumping, June, 1929, to May, 1930, $22,575.31 — yearly saving, $25,216.40

Cost of pumping, June, 1930, to May, 1931, $10,414.30 — yearly saving, $37,377.41

Cost of pumping, June, 1931, to May, 1932, $17,920.81 — yearly saving, $29,870.89.

Total savings for three years' operation and pumping — $92,464.70

The total cost of the auxiliary pumping plant was $69,762.41, the building costing $21,158.44 and the pumping equipment $48,603.97. Thus it can be seen that the saving in pumping charges made possible by the construction of the new pumping plant paid the entire cost of construction of the plant and returned $22,702.29 additional in the three years of operation. Nor does this figure include all the savings made possible by the installation of the new plant as it does not take into consideration the saving in labor costs due to employing one less operator. This was possible because pumps in the new plant are self-priming while those in the old plant were of the dry type and had to be primed every time they were started. The push button control of the new installation eliminated an appreciable amount of labor.

This district is one of many that for years has been lifting water with equipment not suitable for heads under which it is required to operate. Such equipment may be very efficient at some point on the curve but cannot be expected to operate over too wide a range and show a low cost per second-foot of water lifted. Taking advantage of new conditions and new equipment often can be made to pay dividends by improving over-all plant efficiency in a similar manner to that described above.

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Electric Rig Drills Deepest Oil Well

General Petroleum Corp. Berry well No. 1 located in the South Belridge Field of the San Joaquin Valley, Calif., reached a record depth of 11,377 ft. on May 29, 1934. This well was projected for an exploratory test of sand measures underlying the Middle Miocene brown shale horizon. Notwithstanding the great depth to which this well was drilled (approximately 2.15 miles) and the fact that very little extra heavy or unusual equipment was used, drilling operations were carried forward with a minimum of serious trouble. This was due in part to the ease of control of the electric drilling rig.

Two 25/65-hp. motors drove the drawworks and table through a differential gear drive. Forced ventilation was provided by auxiliary motors and blowers. A 100-hp., four-cylinder gas engine was maintained for emergency use in case of power failure but was not needed for this purpose and was used only for such incidental work as tonging pipe and spooling line. Geared mud pumps were used and were driven by 25/65-hp. motors with forced ventilation. Two of these pumps were in the original installation, another was added as a sump pump and a similar one with a 3,000-lb. fluid end was added later to meet the higher pressures encountered in the extreme depth.

In an attempt to determine what speed of rotation gave the best drilling progress in the exceedingly hard formations encountered, a recording tachometer of the electrical type was connected to the rotary table. While this installation has not led to any general conclusions, its continued use should be a guide to intelligent drilling of future wells. A recording voltmeter gave a record of whether the power had been off and whether the voltage had been maintained at a satisfactory value. Indicating and recording wattmeters on the drawworks and pump motors indicated to the drillers the torque which was being imposed upon the drill pipe and whether the motors were overloaded.

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250,000-Amp. Artificial Lightning Produced

Lightning bolts of the order of 30,000,000 kw. at 250,000 amp. and 150,000 volts have been produced in the high voltage laboratory of the General Electric Co. at Pittsfield, Mass. This is the first time that currents of this order of magnitude have been available to engineers for research work.

So powerful are the lightning discharges that copper wire is completely vaporized, iron wire exploded and reinforecd concrete broken into bits by the arc produced. If the arc is confined in a small fiber tube, the tremendous pressure developed blows the tube to bits. When conductor heavy enough to carry the current without fusing is used, it is subjected to tremendous internal mechanical forces. If passed through a flat copper strap, the "pinch effect" crumples the strap to a nearly round cross-section. To carry such a heavy current continuously without overheating would require a solid copper conductor 3 ft. in diameter.

Equipment necessary to product the discharges consists of 96 Pyranol-filled capacitors rated at 50,000 volts, each, which are connected in series of three to produce 150,000 volts, with the 32 banks of three each in parallel. Two Kenotron rectifier tubes in series are used to charge the capacitors.

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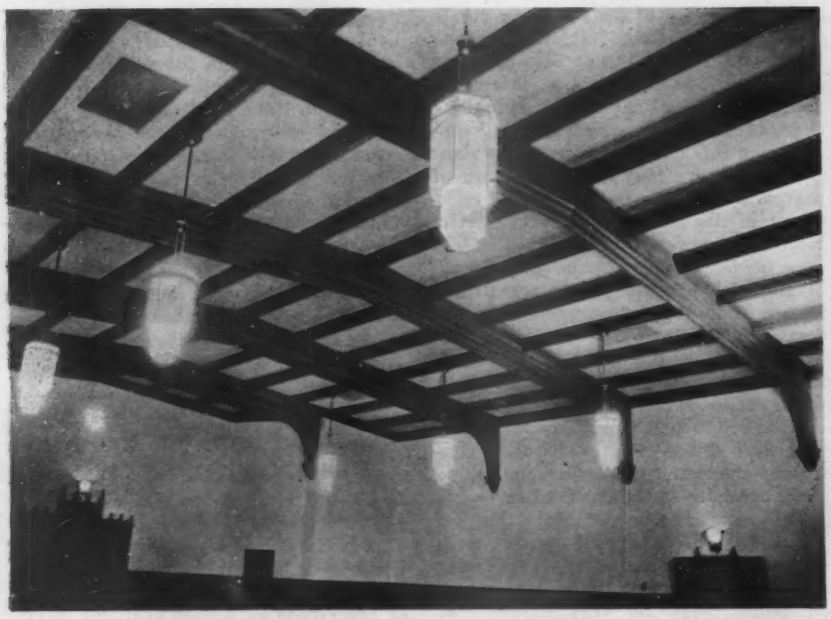
¶ **Emergency service** in hospitals means a great deal more these days than in the past, according to an incident related by J. Dannheiser, manager of Es-B-Es Co., San Francisco. Mills Memorial hospital, which has a battery emergency lighting system installed, called up one day recently anxiously inquiring how long the emergency system would operate a respirator in case of power failure. Checking up, Mr. Dannheiser found that the system, installed in 1925, would deliver 6,000 watts for an hour, or 4,900 watts for an hour and a half, which converted into power for the respirator would allow its operation for 3 hours if hall lights and emergency lights were cut down to a minimum. This satisfied the hospital that its emergency system was valuable not alone for its lighting, but for the vital services of a respirator in a critical case, if required.



Double duty ceiling fixtures control light for activities and rituals in the Napa, Calif., Masonic hall. Ventilation grill in the ceiling, and station lights are also seen in this view of the modernized lodge room

Modernize Lighting In Napa Masonic Lodge

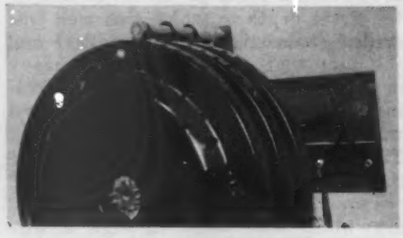
SUMPTUOUS new lodge halls are not the fashion these days, as they were in the not too distant past. Nevertheless there is no reason why even a lodge hall built some years ago cannot enjoy some of the modern advantages which electricity has to offer to the better creation of a proper atmosphere for the ritual. At least so though the Napa lodge of F. and A. M. The result is a truly modern lodge, with lighting inexpensively and yet effectively aiding in the lodge work as well as contributing to the comfort of its members.

G. M. Simonson, electrical engineer, San Francisco, designed the re-electrification of the old lodge building. In addition to the relighting of all lodge quarters, particular interest centers on the main lodge room.

Lighting of this room is accomplished from two rows of modern paneled glass fixtures which conceal in them a Holophane projector, with a 1000-watt lamp, directed to the ceiling for indirect illumination. This is the chief source of light. Below the projector are six lamps in two colors, red and blue, arranged around a modernistic enclosing globe containing another large lamp. These colored lamps are concealed behind the outer shell of paneled glass, and are separately circuited. They are used in the ritual work.

Control of the lighting is centered at a group of small tumbler switches near the main entrance door. These give remote low voltage control of the contactors which turn on the various overhead units, the station lights, and symbolical emblems illuminated during the rituals. The main lights are on dimmers, placed in a small closet just back of the doorway. These dimmers are so connected that when the dimmer is on the off position the control circuit is opened by a small mercury tube switch, thus preventing a forgetful member from leaving the load on the dimmers in the belief that the circuit is off when it is only on the low position. Circuits are arranged in connecting them to the dimmer plates so that some of the circuits can be left off without affecting the dimmer.

In addition to the main lighting, ample convenience outlets are provided for the various uses of a lodge hall, and floor outlets are located in the center of the hall for the Eastern Star positions.



Dimmer plates located in an ante room outside the lodge room, equipped with a mercury switch which disconnects the dimmers when on the off position, thus eliminating heating or forgetfully leaving them on

Ventilation was also installed, to modernize the building, with air brought in at the ceiling and exhausted through grills at the floor level. Remote control switches for this system are located in the corridor near the doorway, the system being arranged to operate at either of two speeds with a separate switch for each.

Earl Wilson, Napa electrical contractor and Mason, installed the remodeled wiring system, involving many carefully installed additions to old wiring.

Floating Gasoline Station Unusual Job

Gasoline stations on land may present no unusual electrical problems, but one afloat, 1,200 ft. from shore does require special attention. Reston Electric Co., of Vancouver, B. C., which has specialized in marine electrical work for many years, just completed such a station for the Shell Oil Co. of B. C., Ltd., afloat in Coal Harbour, Vancouver. The station was erected on a 30 by 80 foot scow, and is equipped to care for all marine traffic besides being capable of servicing aircraft. A. E. Yates, construction and maintenance engineer of the company, planned the electrical installation.

A 2,300-volt submarine cable manufactured specially in Montreal extends from the B. C. Electric Railway Co.'s lines in Stanley Park approximately 1,200 ft. under Coal Harbour, terminating at a dolphin on the top of which transformers are installed. From the dolphin heavy flexible cable connects to the marine station on counterweights to allow for rise and fall of the tide.

Every precaution has been taken to make the electrical installation explosion-proof and for this reason specially manufactured marine electric fittings and switches were used with brass glands throughout.

The electric motors operating the gasoline and Diesel pumps are remote controlled at various points for the convenience of customers. The living quarters are fitted with explosion-proof electric range and air heater, while the hot water supply is also electrically heated.

The station is adequately illuminated above and below deck, while the large "Shell" sign, 30 ft. long by 5 ft. wide, is floodlighted from four points by vaporproof projecters with spread lenses on top of the house.

All wiring, which is lead-covered throughout, is installed in what is known as the loop-in system, there being no joints in the entire installation. Electrical controls are situated in the operator's office.

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¶G. Miller and R. Glover, a new partnership in Vancouver, B.C., have opened the Marine Electric Co., located at Georgia and Bidwell streets. As the name implies the firm intends to specialize on electrical work on the smaller marine craft.

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¶W. R. Judson has been appointed manager of the Salt Lake City district office of the Allis-Chalmers Manufacturing Co. For the past sixteen years he has been in the foreign service of the company in South America and France. He succeeds H. E. Weiss, who has been transferred to the company's office at Kansas City.

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¶Industrial Electric Service Co., Los Angeles, recently moved from 2357 E. 91 Street, to 2060 Santa Fe Ave.

Motor Forum

—*An Idea Exchange*

for the Industrial Man and his practical problems, either mechanical or of policy

Motor Shop Handles Super Rush Job

Talk about a rush job. Quality Electric Co., Ltd., Los Angeles, was called upon to show what service the motor specialist could perform on a recent occasion. Called on Saturday morning by the Standard Dredging Co., it went to work immediately. The dredging company had discovered at the last moment that the pump on its dredge being sent to Pearl Harbor, Honolulu, was equipped with a 200-hp. motor, which was far too small for the job required. A 400-hp., eight-pole, 2,200-volt motor was needed immediately to make the shipment the following week. All the motor manufacturers and shops in the city were scoured without finding a motor of the required characteristics and the limited dimensions forced upon the dredging company by the size of its barge and the equipment already installed. Gearing, shafts, etc. prevented the use of a larger standard make of motor.

The call came in at 10 a.m. Sautrday, March 3. Quality had the frame of a sixteen-pole, 440-volt motor which it was calculated could be redesigned and could be built into a 425-hp. motor. A quotation was worked up and delivered at 12 o'clock. This was wired to the New York office of the dredging company at noon and reply came back at 9:30 a.m. Sunday morning. Quality was told to go ahead.

The crew was assembled by 10:30 Sunday, the old motor was removed from the warehouse, itself quite an operation, stripped of old winding, new winding designed and formed, coils made, dipped and baked, placed in the stator, connected, the entire job dipped and baked complete in the frame, tested and finished at 10:45 a.m. Wednesday. On the minute the motor was mounted on a truck headed for the Los Angeles steamship dock at San Pedro, since 12 o'clock was the limit for the receipt of freight for the boat that sailed that afternoon. The next boat would not sail until March 17, ten days later, and as the dredging company had a penalty for delayed performance of its dredging operations this delivery saved the day.

In all it was but 72 hours from the time the order was received until it was completed and out of the door. Everything was programmed and worked through like clock work. C. C. Adams, shop superintendent of the Quality Electric Co., Ltd., was the designer. On test the redesigned motor even performed better than calculated.

¶"Oil-up" and "Blow-out" Service:—W. Buchanan, Idaho Falls Electric Co., Idaho Falls, Idaho, says that the greatest source of new business lies in a free refrigerator and radio service that he renders. Once a year, for several weeks in the Spring the refrigerator service men are sent around to oil up and inspect all the refrigerators that the company has ever sold. Similarly in the Fall the radio service men make the rounds of the radio customers and blow out the radio sets and check the tubes. These service men are carefully trained, so that when they are on the premises they get every possible lead as to more appliances needed in that home, and leads as to relatives and friends who are in the market for appliances. Their work even extends to arousing interest in connection with additional outlets, and other wiring work that is needed. These leads are immediately telephoned to the house and a salesman is sent at once, with the result, in some cases, that a sale is made almost before the service man has left the locality.

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Make Railway Coils

Motor specialists can often serve local industry better than it realizes. For instance, Quality Electric Motor Co., of Los Angeles, now forms, wraps, dips and bakes all of the motor coils for both the Los Angeles Electric Railway and the Pacific Electric Railway from its well-equipped shop in Los Angeles. A special method for annealing and bending of flat ribbon windings and special forms for shaping the coils has been worked out for quick operation in this shop.

Forming coils for street railway motors

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Table for Horsepower Rated Switches

Ralph Wiley, chief of the department of electricity, San Francisco, in order to clarify the requirements for horsepower rated switches, in accordance with section 1005 d, 1933 National Electrical Code, has prepared for the trade the accompanying table. He stated:

"The ratings of horsepower rated motor disconnect switches are approved for the maximum current conditions for motors of a definite size in horsepower, without due consideration being given to the method of starting the motor, or the type of motor. This would require the installation of fuse adapters in the larger switch sizes, for motors of either the high reactance, direct current, or wound rotor types.

"In order to provide the proper motor-circuit protection for the different classes of motors of the same horsepower ratings, without materially affecting the cost of the electrical installation, this department has issued a table of horsepower rated motor disconnect switch sizes."

April 16, 1934. Department Of Electricity, City and County of San Francisco. Ralph W. Wiley, Chief

Horsepower Rated Motor Disconnect Switch Sizes

The ampere rating of approved horsepower rated motor disconnect switches & the classification of the type of motor shall determine the correct size of the motor disconnect switch, as indicated in the following tables:

Size of H.P. Rated Dis. Switch	Squirrel Cage & Synchronous (Full-Voltage, Reactor and Resistor Starting) Single Phase					Squirrel Cage & Synchronous (Auto-Transformer Starting) High-Reactance Squirrel Cage			Wound Rotor and Direct Current				
	Single Phase 115 V	Single Phase 230 V	2 Ø 3 W 230 V	3 Ø 3 W 230 V	3 Ø 3 W 460 V	2 Ø 3 W 230 V	3 Ø 3 W 230 V	3 Ø 3 W 460 V	2 Ø 3 W 230 V	3 Ø 3 W 230 V	3 Ø 3 W 460 V	D.C. 115 V.	D.C. 230 V.
30 AMP.	¾ HP 1800 RPM	1½ HP 1800 RPM	2 HP	3 HP	5 HP	3 HP	3 HP	7½ HP	5 HP	7½ HP	15 HP	3 HP	5 HP
60 AMP.	2 HP	3 HP	5 HP	5 HP	15 HP	5 HP	7½ HP	15 HP	10 HP	15 HP	30 HP	5 HP	10 HP
100 AMP.	3 HP 1800 RPM	5 HP	10 HP	10 HP	25 HP	10 HP	15 HP	30 HP	20 HP	25 HP	50 HP	7½ HP	15 HP
200 AMP.	—	10 HP	20 HP	25 HP	50 HP	25 HP	30 HP	50 HP	40 HP	50 HP	—	—	35 HP

For motors above 50 horsepower, the disconnecting means may be a general-use switch or an isolating switch, provided, however, that when the voltage exceeds 300, the rating of the disconnecting means shall not be less than 400 amperes.

Colorado Contractors Get Code Operating

A "coats off" day-and-night series of meetings during latter June in Denver welded electrical contractors of District 6, Region 9—comprising all of Colorado and Southern Wyoming—into a cohesive unit so far as the national electrical contracting code is concerned.

Earl N. Peak, of Marshalltown, Iowa, code administrator for Region 9, presided, answered questions, correcting misconceptions and generally supervising organization matters. As a consequence, the electrical clan has become more fully acquainted with code intentions and proposed methods of operation. The matter of figuring costs on bids was threshed out exhaustively and a satisfactory understanding reached.

A telegraphic communication from Mr. Peak, July 14, definitely fixed July 23 as the date on which a "bid repository" at the International Trust Company, Denver, should begin functioning. Under this system all contractors competing on a job will submit their sealed bids at the designated repository, with confidence that nobody will have access to them until the proper time. This system, together with other code features that predict fair play and a square deal, is welcomed by electrical contractors in District 6.

Matt Whitney, Colorado Springs contractor, was named chairman of District six—seven areas in Colorado and two in Wyoming. W. A. J. Guscott of Denver, who has been very active in developing code sentiment, was appointed chairman of the Denver local administrative area, which includes more than half the entire district's membership. Tentative committees in each of the nine areas have been selected and now await only official confirmation.

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Northwest Inspectors Tell Convention Plans

A. M. McLean, president, and Fred D. Weber, secretary, of the Northwestern Section, International Assn. of Electrical Inspectors, have announced the complete program for the forthcoming convention of that section, at the Multnomah hotel, Portland, Sept. 17, 18, 19. Besides the reports of the various committees studying the individual sections of the National Electrical Code and reporting on a year's experience with its provisions, several feature speakers have promised to take part. Franklin T. Griffith, president of Portland General Electric Co., will welcome the convention. W. J. Mahan, president of the I.A.E.I., will be present and make an address.

Portland's new electrical code will be discussed both by L. W. Going, chief inspector, and A. L. Abbott, assistant, uniform legislation department of the National Electrical Manufacturers Assn., thus presenting both the local and outside views of the code. W. J. Canada, also of N.E.M.A., will discuss "Another Aid to Uniformity."

L. W. Busse, Crouse-Hinds Co., will present a paper on developments in explosion proof wiring. New sequence metering and service entrance cable will be talked upon by S. B. Clark, superintendent underground department, Northwestern Electric Co., on Tuesday. That afternoon will be the golf tournament, inspection trips and tours about the city of Portland.

Wednesday Victor H. Tousley, secretary of I.A.E.I., will give the national viewpoint on the N.R.A. and its effect upon inspection. One important feature of the convention will be a floor discussion of "Civil Service", led by L. W. Going and participated in by all members.

Beside the inspection problem discussion, for which these conventions are particularly valuable in the bringing about of uniform interpretation and practice in various localities, the convention will give an opportunity to visit the Bonneville dam development of the U.S. Government on the Columbia river.

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Southwestern Inspectors Make Convention Plans

Although the plans for the convention of the Southwestern Section, International Assn. of Electrical Inspectors, to be held at Sacramento, Sept. 24, 25, 26, have not yet been completed, according to Karl J. Bickel, electrical inspector, Martinez, Calif., and Claude W. Mitchell, secretary, one thing is going to be amply provided for. That is a full opportunity for the discussion of inspectors problems, interpretations of the 1933 edition of the National Electrical Code, and field experience of the past year. This feature of inspector conventions, according to Mr. Bickel, is of the greatest value to inspectors from a practical every-day standpoint.

R. H. Manahan, chief, department of electricity, Los Angeles, will lead the discussion of the code, and George H. Kimball, electrical engineer, Industrial Accident Commission, will discuss the new Safety Orders which that commission has just issued after months of revision by industry committees. Carl W. Beaton, city electrician, Sacramento, will be host, and has been awaiting this opportunity for years to demonstrate the roseate claims he has always made for his city to be modest compared to the reality.

National officers, W. J. Mahan, president, and Victor H. Tousley, secretary of the I.A.E.I., will address the convention, and from the National Electrical Manufacturers Assn. uniform legislation department will come Arthur L. Abbott, one of the nation's best authorities on wiring practice and method, and possibly W. J. Canada, of the same department, former field secretary of N.F.P.A. The convention will be held at Hotel Senator.

Seattle Pioneer Contractor Passes

Herman G. Babcock, electrical contractor long associated with W. M. Meacham in the firm, Meacham & Babcock, died in Seattle, June 25, from a long illness. Born in Nebraska in 1880 Mr. Babcock came to Washington as a child, and as a young man engaged in electrical business in that region. In 1906 he became associated with Mr. Meacham, which association has continued until his death.

The firm is known for some of the largest electrical contracting jobs in the Northwest, including enlargement of the city of Seattle's lighting system, installation of underground steam and electrical systems for the Alaska Yukon Pacific Exposition in Seattle, 1909; several large sewer construction jobs, street lighting in many Northwest cities, 12 wooden ships for the U. S. merchant fleet during the war, electrical installation at Diamond Cement Co., Bon Marche department store; and in conjunction with the Butler Construction Co., of which Meacham and Babcock were part owners, viaducts and hotels.

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¶**Rocky Mountain Chapter,** International Association of Electrical Inspectors, elected the following officers for the ensuing year at the recent annual convention held in Denver: Chairman, F. H. Beatty, electrical inspector, Clayton, N. M.; First vice chairman, T. P. Treadwell, electrical inspector, Fort Collings, Colo.; Second vice chairman, W. H. Hart, electrical inspector, Pueblo, Colo.; Secretary-treasurer, V. C. Moulton, Denver, Colo.; Executive Committee—A. E. Burt, Colorado Springs; W. H. Herold, Fort Morgan; H. M. Koch, L. A. Vosmer, Floyd E. Brown, William Trudgian, John Malpiede, Clifford B. Noxon, and E. E. Brazier, all of Denver; and John Smith, Burlington.

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¶**A revised edition** of the National Electrical Code Handbook, by Arthur L. Abbott, bringing it up to date with the 1933 edition of the National Electrical Code, has been announced by the McGraw-Hill Book Co. Copies of the book are available at the depository for McGraw-Hill books at 883 Mission St., San Francisco. The book is virtually an electrical code handbook, simplified and told in diagram and picture, and is a great aid to wiremen in gaining an understanding of the interpretations of the code.

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¶**Reconditioning of the home** is dealt with in a folder being distributed by the district offices of the Home Owners' Loan Corp. to applicants for refinancing loans under the act of 1933, permitting disbursements up to $200,000,000 for repairs and rehabilitation. In the check list are named a number of improvements to the home which electrification can bring, such as installation of additional convenience outlets, better lighting, etc.

¶Dr. C. E. Magnusson, head of the electrical engineering department of the University of Washington at Seattle, has been named permanent chairman of the Washington State Planning Council's technical advisory committee.

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¶J. W. Newell recently received recognition from the Pacific Telephone & Telegraph Co. in Seattle for 35 years of continuous service with the company. Mr. Newell is a charter member and former president of the Charles B. Hopkins chapter, Telephone Pioneers of America, and has been employed by the company in Cincinnati, Pittsburgh, San Francisco and Portland. For the past 25 years he has been in Seattle.

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¶A. M. Chitty, formerly manager of the Southwestern district of the Puget Sound Power & Light Co. with headquarters at Olympia, has been appointed Western district manager with headquarters at Bremerton. Mr. Chitty replaces A. S. J. Steele, who has become suburban manager in King County, with headquarters in Seattle. C. C. Curtis, manager of the Southern division of the company, will take over the work formerly handled by Mr. Chitty.

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¶Ralph W. Wiley, chief of the department of electricity, San Francisco, made a radio talk over KPO, July 12, as a part of that station's series on the various departments of city government. The talk took the form of an interview, in which Clyde L. Chamblin, of California Electrical Construction Co., asked Mr. Wiley questions about the city's various electrical systems. Among the systems discussed were the fire alarm, police call, police radio, street traffic signal, and electrical inspection department.

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¶J. J. Agutter has been appointed by Sam Hepler, 11th region code authority chairman for the electrical contracting code, as district chairman for the Seattle area.

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¶Fred D. Weber, Oregon Insurance Rating Bureau, Portland, concluded his term as president of the Portland Electric Club at its June 28 meeting. He gave a report of the club's activities during his administration.

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¶J. C. Bird, district manager of the Okonite Co., the Okonite Callendar Cable Co., Inc., and the Hazard Insulated Wire Works Division, for the northwest, has moved his offices to 701 Northern Life Tower, Seattle from a former location in the Hoge Building.

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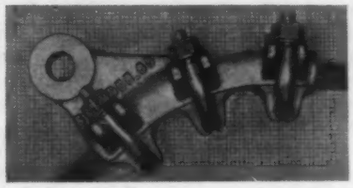
¶An examining board of five presons, including C. T. Doyle, city electrical inspector; L. G. Jeffrey; J. H. Robinson; O. J. Spealman and Curtis Hess, has been set up by Public Works Commissioner Jean L. Vincenz for the city of Fresno in connection with its new ordinance. This board is to conduct the examinations of master and journeymen electricians.

New Devices » » »

to Use on that Next Job

New Strain Clamp

Delta-Star Electric Co., Chicago, Ill., has developed a new strain and dead-end clamp for industrial and pole top service. The clamp is built on the same principle used on Delta-Star line connectors, namely, compression and distortion of the cable strands. It is available in four sizes from 1/0 to 2,000,000 circ.-mil. Weight ranges from 3 to 11 lb. The pull-out or slippage values range from 6,500 to 18,600 lb. and the clamps can be used with clevis or ball and socket strain insulator units.—Electrical West, August, 1934.



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Florduct for Extensions

National Electric Products Corp., Pittsburgh, Pa., has placed on the market metal "Florduct," a product designed for extending low potential wiring across the floor surface to some piece of free standing furniture or machine. It consists of two pieces—a base and capping so formed as to snap together with concealed fastening means in the base. It is of convenient proportions, standing 5/16 in. in height with a gradual sloping ramp-like plate extending to the floor surface covering a width of 1½ in. It is designed to accommodate circuits for two or three telephones or wires of a half a dozen buzzer circuits. A complete line of fittings to facilitate installation has also been developed.—Electrical West, August, 1934.

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Instrument Switches

Roller-Smith Co., New York City, announces a new line of instrument and control switches, designated as type "R Rotary." They are to be used on switchboards and control panels of all kinds. The instrument switches are for use in connection with electrical measuring instruments and the control switches for establishing proper connections to air and oil circuit breakers and other equipment of that nature. Current carrying members are rated at 15 amp., 115 volts, a.c., and are insulated for 600 volts to ground. Stationary and moving contacts, studs, bakelite structure and cams are the same for the entire line of swiches which permits great flexibility of utilization.—Electrical West, August, 1934.

▼

Vacuum Gage

Continental Electric Co., Saint Charles, Ill., announces a new model "Tru-Vac" vacuum gage which is claimed to incorporate a number of advantages over the mercury type gage. One of its advantages is that it will indicate the presence of water and other vapors. It is adaptable to any vacuum pump or system and may be installed in rubber or sealed to glass in any position in the vacuum system.—Electrical West, August, 1934.

▼

Variable Speed Motors

Sterling Electric Motors, Inc., Los Angeles, Calif., has added to its line of Vari-Speed motors a new upright enclosed model which possesses all of the characteristics of the horizontal type announced some six months ago. The new models are available in ratings up to 15 hp. with standard variations (infinite) of 2:1, 3:1 and 4:1. Higher ratios and many special combinations also are available.—Electrical West, August, 1934.

Smoke Density Recorder

Bailey Meter Co., Cleveland, Ohio, has announced a new photo cell smoke density recorder compensated for variations in light source intensity and operated by the Galvatron electronic relay circuit. The equipment consists of a receiving element in the form of a recorder which is usually mounted on the individual boiler panel board on a transmitting element consisting of a projecting cylinder and a detecting cylinder which are mounted on opposite sides of the breeching or flue gas passage. A continuous record of relative smoke density is made by the recorder.—Electrical West, August, 1934.

▼

Voltage Booster

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces a low priced, pole-mounted booster which automatically changes feeder voltage either 5 or 10 per cent in a single step. They are designed for maintaining proper voltage for rural lines, isolated loads, or distribution circuits where the load changes once or twice daily from very light to practically full load. Single-phase, 60-cycle boosters range from 1¼ kva. at 2,400 volts up to 50 kva. at 6,900 volts. Three-phase, three-wire circuits require two units connected in open delta; three-phase, four-wire circuits require three units in star.—Electrical West, August, 1934.

▼

Test Light and Fuse Puller

The Ideal Commutator Dresser Co., Sycamore, Ill., has placed on the market a combination test light and fuse puller. Made of reinforced bakelite and like a pair of pliers, the new device permits testing, removing or inserting fuses from 30- to 100-amp. capacity and testing circuits of from 110 to 550 volts. The test pins are mounted on the handle ends with the test light enclosed in the handle. The tool is of small pocket size, being only 7 in. in over-all length. Electrical West, August, 1934.

▼

Long-Life Storage Batteries

Electric Storage Battery Co., Philadelphia, Pa., announces that Exide "ironclad" batteries are now equipped with Exide "Mipor," an entirely new patented material used for separators. It is a form of vulcanized rubber in sheets, which is permeated with countless microscopic passages permitting free diffusion of the electrolyte but preventing the passage of the most minute particles of active solids. "Mipor" is unaffected by the electrolytic solution and immune to heat developed in the battery, besides having high mechanical strength.—Electrical West, August, 1934.

▼

S & M Floodlights

S & M Lamp Co., Los Angeles, has added two new "Red Cap" floodlights to its line of lighting equipment. Constructed of oxidized aluminum, these lights are built with a 7-in. reflector bowl and a beam spread of 120 deg. for use in small show windows, yards, garages, and signs. They are designed to take 100-watt clear lamps. List price is $2.95.—Electrical West, August, 1934.

NRA . . .

. . . Coding Done, Details Next

. . . Manufacturers Ask for Eagle

. . . Wholesalers Operate Basic Code

. . . Contractors Want Experience to Guide

. . . Retailers Benefit by Others Codes

NOT spectacular is the second phase of NRA, that of adjusting, of tightening here, loosening a bit there, to fit the crazy quilt pattern of intricate business life. Chiselers have one characteristic, they are ingenious. Blocked in one direction they look for another loophole to crawl through. Interesting though, is the way the sieve of NRA is clogged with the same offenders over and over. The honest mistake only happens once. Codes have acted to allow the confirmed chiseler to condemn himself.

¶ **Conflicting** policy in different codes is getting the attention of NRA at present. In the hurry of first code writing the idea was to get something done quickly to start employment, work out the details later. NRA has given as one policy that provisions in approved codes which do not draw fire, whether they run into difficulties in other codes, will probably be allowed to stand. This means that any group having a code will get no government interference unless someone complains to the administrators. That puts it right up to each group so to operate its code that there will be no squawk to Uncle Sam.

¶ **Loose talk** often blames the big shipping strike on NRA and the New Deal. Yet the entire difficulty grew out of the old rugged individualism of shipowners who have resisted going under a code. Had they been smart, and played the game according to the 1933 rules, probably there'd have been no fight. As it was, the entire industry of the West suffered while owners and longshoremen tussled. On the other hand, groups which eagerly went after codes, took the initiative in getting collective bargaining from employees started, are a jump ahead in every move.

¶ **Service trades,** which were released except as to hours and wages from national codes, are sorry they ever caused the trouble which made policing their codes so difficult. Prices have collapsed, unfair trade practices have been whetted to razor keenness and are used to hack down competition. There is universal clamor to get back under a code. State legislation is likely to help these intrastate businesses.

Manufacturers

¶ **Electrical manufacturers** are strong for the code. Longest under operation, many of their minor difficulties have been well ironed out, details have been adjusted. Now most of them are putting their moral support out to the trade to sustain the Blue Eagle. Letters such as this from Fred Adam to Representative Sam Russell are the order of the day: "We are sending you a Blue Eagle to put up in your office . . . hope you will make every effort to carry out the true intent and meaning of the code for the manufacturing industry. . . it is simply an opportunity offered us . . to do business in the fair, square, businesslike manner. . the Golden Rule . . 'to do unto others as we would have others do unto us.' "

Cheap?

C. M. Gilbert, manager of Gilbert-Weston-Stearns, Inc., electrical contractors, dealers and engineers of Santa Ana, contributes this gem of thought, expressed many years ago by President William McKinley.

"I do not prize the word cheap—it is not a word of hope nor a word of cheer. It is not a word of inspiration. It is the badge of poverty, the signal of distress. Cheap merchandise means cheap men and cheap men, a cheap country."

¶ **How the Eagle works** is seen in a recent instance. NEMA made a complaint to NRA that a certain manufacturer was violating the code in selling the Woolworth stores wiring supplies below filed prices. NRA withdrew the Code Eagle. Woolworth Company told the manufacturer it wouldn't buy any goods from a code violator.

¶ **Advertising,** even, is not placed by some concerns with a publication unless it flies the Eagle at the masthead. Happily we do, and intend to.

¶ **Radio manufacturers** have filed a code of their own, asking separation from the basic electrical manufacturing code. Whether the policy of blanketing related industries more closely together will keep this code a subcode under the basic code has not been determined yet.

¶ **Water power equipment** now comes under the Machinery and Allied Products Industry Code, with a subcode approved June 26.

¶ **Washing and Ironing** machine manufacturing industry has filed a standard accounting system with NRA for approval. This is expected to aid in stabilizing the offering prices which up to now have rubbed up and down the washboard in a Blue Monday fashion.

¶ **Artistic lighting** code approved, preliminaries are under way for the administration of this very difficult industry. Where every dealer is a manufacturer, the complexities are legion.

Wholesalers

¶ **Radio wholesalers** are separately coded, and starting to operate as such. Electrical wholesalers, however, are still working on their subcode to the general wholesale code. Meanwhile the applicable provisions are being worked out.

Contractors

¶ **Some minor differences** of method are causing irritation but no real trouble in the application of the contractors' subcode to the construction industry. Code authority headquarters is building organization procedure along traditional theoretical organization lines. Western code administration groups find that contractors do not run to theoretical lines worth a hoot. They are proceeding, instead, from ground experience and a knoweldge of the cussedness of human nature in the raw of competition. Unorthodox sometimes are their rules and procedure, but they work. Orthodox rules often do not. Regional Chairman Flatland, for instance, operates on the plain common sense idea that it is better to prevent than to try to cure. Prevention sometimes takes a select diet, certain specific forms of exercise. Cure too often is a lingering, convalescent sort of process.

Retailers

¶ **With a sketchy code,** not much was expected by disappointed retailers from NRA. Yet surprisingly, retailers now are beginning to realize that many of their troubles came down to them from ahead in the lines of distribution. With some of the manufacturing shortcuts evened up, and wholesale code operation, the retail end of it is happier. Most of the cut price competition came from special deals offered by manufacturers in their own competitive wars.

¶ **Electrical retailers** are turning more attention to sales. This is as it should be. With minds relieved of cutthroat competition and manufacturers' problems, it sifts down to who is the best salesman now. Therefore more effort on sales method, more participation in group cooperative campaigns, is forthcoming. Now that the competitor is playing ball, why not play with him to a common team purpose, is the new thought.

What's New?

Harris J. Ryan Dies At Palo Alto

Dr. Harris J. Ryan, former executive head of the electrical engineering department at Stanford University, past president of the American Institute of Electrical Engineers and internationally known researcher in the field of high-voltage, long-distance power transmission, died of a heart attack at his home in Palo Alto on July 4. He was 69 years old. For the last three years between

HARRIS J. RYAN

periods of illness, he has been devoting practically all of his time to electrical research at the famous laboratory on the Stanford campus which bears his name.

Dr. Ryan was born in Pennsylvania and attended Cornell University, from which he was graduated in electrical engineering with the class of 1887. He served on the Cornell faculty until 1905, when he came to Stanford. For 26 years he served on the electrical engineering faculty, imparting knowledge and inspiration to hundreds of young men who since have made their mark in the electrical industry.

Because practically all of his research was directed toward practical ends, various organizations in the industry in cooperation with the university erected the Harris J. Ryan high-voltage laboratory at Stanford in 1926 in order to provide the finest possible equipment for carrying out his research. His experimental work was not limited to a few special fields but covered practically the entire range of electrical engineering from direct-current machinery to high-voltage, long-distance transmission. For his contributions to the science and art of power transmission he was awarded the Edison Medal for the year 1925.

In addition to various offices in the A.I.E.E., he was a fellow of the American Association for the Advancement of Science, a member of the A.S.M.E. and many other organizations.

Bids Received for Bonneville Turbines

Bids were submitted by three manufacturers to the U.S. Army Engineers in Portland for the initial two 60,000-hp. Kaplan-type hydraulic turbines to be installed at the Bonneville project on the Columbia River. The figures submitted covered turbines and governing equipment and were as follows:

S. Morgan Smith Co., York, Pa.: Turbines, $1,119,331.00; governing equipment, $73,744.00; total, $1,193,075.00

Pelton Water Wheel Co., San Francisco (shipping point, Eddystone, Pa.): Tubines, $1,180,280.00; governing equipment, $74,800.00; total, $1,255,080.00.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis; Turbines, $1,181,285.00; governing equipment, $70,840.00; total, $1,252,125.00.

All bids were on an f.o.b. factory basis.

The turbines, of which there will be 10 ultimately, are of the Kaplan adjustable blade type for operation at heads ranging between 50 and 65 ft. Efficiency guarantees for various heads and loads range between 80 and 88 per cent. Rated speed is 75 r.p.m.

Specifications for two generators are being prepared and a call for bids will be issued shortly. The rating of the generators will probably be 43,200 kw. with bidders permitted to submit figures for voltages of 13,000, 23,000 or 34,000. They will be of the conventional umbrella type with direct-connected exciter and pilot exciter.

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Death Stills Voice of "Herb" Barre, Engineer

A kindly wit and penetrating insight into human nature, business and government was lost to the electrical industry when Herbert A. Barre, chief engineer of the Southern California Edison Co. Ltd., and for many years an outstanding figure in the construction and operation of southern California electrical power supply, died suddenly June 28 at his home in Los Angeles, Calif. He was 59 years of age. His death was caused by cerebral hemorrhage.

Mr. Barre was largely responsible for the successful construction and operation of the first 150,000-volt long distance transmission line in the world, between the hydro-electric plants of the Edison Company's Big Breek-San Joaquin River development and Los Angeles. Later, and again under Mr. Barre's supervision, the conversion of these lines was effected for operation at 220,000 volts. This was in 1923.

Mr. Barre, born Jan. 26, 1875, at Pictou, Nova Scotia, received his technical education at Cogswell Polytechnic High School, San Francisco, Calif., and the University of California, from which he was graduated in 1897. Before entering college Mr. Barre was employed as a switchboard operator in the Mill Creek plant of the Redlands Electric Light and Power Co., a plant which later became a part of the Edison Company system.

Following his graduation, Mr. Barre was engaged in the operation, building, design and management of electric light and power and street railway properties in various capacities until 1902. From that year until 1906 he was engaged in consulting engineering work in Los Angeles, San Francisco, Vallejo, Stockton and Seattle. During the next five years Mr. Barre was electrical engineer for the Electric Bond and Share Co. and the Arizona Power Co.

In 1911, at the beginning of work on the Big Creek hydro-electric project in the Sierra Nevada mountains of central California, Mr. Barre became connected with the Pacific Light and Power Corp. as electrical mechanical

H. A. BARRE

engineer and continued in that capacity until that company was acquired by the Southern California Edison Co. in 1917. Mr. Barre was made executive engineer of the company at that time, and in 1929 was appointed chief engineer.

Mr. Barre was a member of the American Institute of Electrical Engineers and the American Society of Mechanical Engineers.

▼

Spokane Gets New Water Heating Rate

A new off-peak automatic water heating service for customers of the Washington Water Power Co. has been announced by Lewis A. Lewis, assistant general manager in charge of sales. Thirty-eight installations had been made in the first two weeks of the campaign which will run until Sept. 1.

The campaign features a factory-built water heater with two elements of 1500 and 1000 watts respectively, operated with a time clock and to be used on tanks of from 30 to 80 gallon capacity. The service will be on schedule 19 of the company's rate schedules and the energy will be charged for at the rate of 8 mills.

Announcements state that the service is guaranteed and that 10 cents a day will give 40 gallons of steaming, hot water.

San Joaquin Reports Results of Two Month "Free Electricity" Offer

Meeting the purposes for which it was designed, namely to give consumers more for their money and to show how useful electricity could be, the "Free Electricity Offer" of the San Joaquin Light & Power Corp., and its affiliate, Midland Counties Public Service Corp., has developed into its second phase, involving a "Lower Rate Offer" whereby domestic consumers are permitted during the next twelve months to qualify for reduced schedules (EWEST, March 1934, p. 20; April 1934, p. 18; July 1934, p. 10).

The plan as originally put forth by the San Joaquin Light & Power Corp. offered all domestic consumers and all commercial lighting consumers unlimited use of electricity for a two months' period commencing with the April meter readings for a monthly charge not to exceed the amount of the March bill. All use in excess of the March consumption was free. This was the "Free Electricity Offer." For the same two months' period, agricultural power consumers were given all power in excess of that used in these same two months of 1933 at half price and under certain conditions without cost. This offer to agriculture was know as the "Special Use Offer." Following this two month's period, all domestic lighting consumers are being given opportunity to qualify during the succeeding twelve months for the low heating and cooking rate, heretofore available only to consumers having electric ranges and other large appliances. A still lower rate is being offered consumers with electric ranges and water heaters. This plan is called the "Lower Rate Offer."

Declaring that the results of the "Free Electricity Offer" exceeded expectations, A. Emory Wishon, president, outlines the accomplishments as follows:

"1. A total of 43,224 domestic and commercial lighting consumers, or 52.9 per cent, of those eligible, took advantage of the offer, using 5,633,911 free kilowatt-hours. This use was 40.5 per cent of the kilowatt-hours paid for at the regular rates.

"2. 21,212,599 kw.-hr. in excess of their last year's consumption were used by 10,726, or 69 per cent of the agricultural power consumers. This use, which was an increase of 102 per cent over the kilowatt-hours paid for at the regular rate, was billed at half price, subject to refund of even this charge if the regular use for the agricultural year exceeds 4,000 kw.-hr per horsepower.

"3. Personal calls on 18,000 domestic and commercial consumers to explain the plan found almost universal acceptance and appreciation of the plan.

"4. Merchants and dealers report sales of electrical merchandise throughout the territory as from double to four times sales last year.

"5. The total cost of the campaign, including increment power costs, special advertising and sales work, has been fully offset by increased sales. Our consumers were given more for their money and our net income was increased."

Final results, he states, will not be available until sufficient time has elapsed to show how much of the use is permanent. However, immediate results are revealed in the accompanying table.

The special use offer to agricultural consumers whereby all consumption in excess of that of the same month in the previous year was billed at half price proved of more benefit to consumers than was originally anticipated. Seasonal precipitation was sub-normal and warm wearther was a month or six weeks earlier than usual with consequent earlier pumping demand. Results of this offer follow:

Total agricultural power consumers	15,393
Consumers who had "special use"	10,726
Per cent of consumers who had "special use"	69.0
Total kw.-hr. at regular rates	20,639,737
Total kw.-hr. at half price	21,212,599
Ratio of "special use" kw.-hr. to kw.-hr. sold at regular rates (per cent)	102.0
Kw.-hr. of "special use" per consumer who had "special use"—per month	990
Kw.-hr. of "special use" per consumer who had "special use"—total	1,980

Both offers are credited with having a beneficial effect upon the public regard for the companies. Costs of the program were well within the budgets established and are calculated to be less than one dollar per consumer taking advantage of the offer and about two mills per kilowatt-hour of "Free" and "Special Use." Officials state that these costs are amply justified by the immediate results without giving any weight to the continuing increased use which is sure to follow.

A close check has been kept on consumer acceptance of the rate plans. In addition to almost 18,000 personal interviews made by company representatives to explain "Free Electricity," 8,600 calls were made to explain the "Lower Rate Offer." These calls disclosed wide-spread interest in the offer, with 85 per cent of those interviewed expressing their definite intention to qualify for the rate.

Table I—Results of Free Electricity Offer

	Domestic lighting	Domestic heating and cooking	Commercial lighting
Total consumers in class	59,695	9,954	11,076
Consumers using "free electricity"	30,000	7,662	5,315
Per cent cons'mrs using "free electricity"	50.2	77.0	48.0
Total kilowatt-hours at regular rate	4,772,255	3,913,046	4,095,893
Total kilowatt-hours supplied free	1,543,367	2,916,138	1,146,676
Ratio of free kw.-hr. to kw.-hr. sold, %	32.5	74.3	28.0
Kw.-hr. of free use per consumer using "free electricity"—per month	25.7	190.0	108.0
Kw.-hr. of free use per consumer using "free electricity"—total	51.4	380.0	216.0

Electric Service Unaffected by Strike

Electric service was unaffected by the abortive general strike which virtually paralyzed business and industry in the San Francisco Bay area during the week of July 15. Appreciating the importance of this vital service, the general strike strategy board of the unions excused members of the I.B.E.U. from participation in the big walkout. Consequences of an interruption in the supply of gas and electricity were too serious for even the strikers to consider.

Otherwise, however, the electrical industry met the fate of all other businesses. Wholesalers and retailers could make no deliveries on account of striking truck drivers. Besides the public was hardly in a mood to buy. Virtues of electric refrigeration became most apparent when the public faced the problem of storing quantities of fresh meat and vegetables. Hotplates were in demand because of rumored fuel shortages.

Stocks of manufacturers, wholesalers and retailers have been low since the inception of the longshoremen's and maritime workers' strikes. Except in the Los Angeles area, many consignments were tied up on docks or in ships anchored in harbors. There were no serious shortages, however. With the settlement of the longshoremen's strike, conditions will return to normal.

¶ **Semi-automatic** control equipment is being installed in the Rush Creek plant of the Southern Sierras Power Co. in Mono County, Calif. The station has a capacity of 11,250 kva. Construction work recently completed on this company's system includes the installation of lightning arresters at the Victor, Southwestern Cement Co., and Colton substations.

¶ **Arizona Power Co.**, Prescott, Ariz., which has been in receivership for some time, is proceeding with a reorganization plan under the provisions of the new amendment to the national bankruptcy act. Z. O. Brown, former receiver has been appointed trustee. It is reported that the plan of reorganization will decrease the capital structure by about 50 per cent.

Seattle City Light Plans $15,000,000 Program

Tentative agreement has been reached by a majority group in the Seattle City Council on a development program of about $15,000,000 for the City Light Department, toward which approximately $4,500,000 has been raised by a recent sale of bonds.

The plan contemplates the purchase and fabrication in Seattle of all steel to be used on a new steel-tower transmission line between a new power plant to be built at Diablo on the Skagit River and the old power plant at Gorge Creek.

The council also plans, tentatively, to apply immediately for Federal loans and gifts totaling an additional $10,000,000, to be used for construction of a new transmission line from the Skagit into Seattle, remodeling and enlarging of several power substations in Seattle and building a flood control and water stabilization dam at Ruby Creek on the upper Skagit.

It is also agreed that steps shall be immediately taken toward taking over from the Puget Sound Power & Light Co. three of its local power substations which still furnish a large portion of the current for the municipal railway, as they did before the street car system was purchased from the company.

The tentative plans provide for giving men on the direct relief rolls all the work of building two additional stories on the partly built City Light Building on Third Ave., estimated to cost about $304,000, and the Washington Emergency Relief Administration is to pay 65 per cent of the labor cost in order that relief recipients may get the work.

It is proposed to have the new Diablo power plant, estimated at $1,750,000, built by contract; the workers to be drawn from outside the relief rolls, and to install machinery and build the Diablo-Gorge Creek transmission line by day labor, drawn also, from outside the reilef rolls. Should the tentative plans be followed through, the steel towers will be fabricated in the City Lighting Department's own shops on the day labor plan, with steel bought from local mills.

The cost of taking over the three power substations from the power company is estimated at about $500,000, but the price must be fixed by a three-member board of arbitration, according to an agreement contained in the railway purchase contract.

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Municipal Ownership Wins in Colorado City

Fort Collins, Colo., has won the first legal skirmish in a public ownership battle by defeating the Public Service Company of Colorado's petition in the State Supreme Court for a change of venue. The utility, in arguing its case, pointed out that condemnation proceedings at Fort Collins would place it at a distinct disadvantage in a locality which has voted to purchase its distribution system at a figure not to exceed $245,000.

Fort Collins taxpayers decided last year to condemn and buy Public Service Company's local system, and voted a bond issue of approximately $500,000 for that purpose and also to provide power sources whereby a municipal plant might be operated. Later investigation disclosed that the utility's local property could not be bought at the estimated figure; and condemnation proceedings were inaugurated. The Supreme Court's decision will remand the case to the Fort Collins district court.

Public Works Administration funds amounting to $663,000 have been allocated to Fort Collins for its projected municipal plant, with the proviso that Public Service Company's lines and equipment must first be purchased in order to provide the necessary collateral for the loan.

▼

¶Oroville, Calif., has temporarily dropped plans for municipal ownership of its electric distribution system following receipt of a letter from P. M. Downing, vice-president and general manager of the Pacific Gas and Electric Co., stating that the company's system was not for sale and announcing that the company would refuse to sell power to the municipality if it constructed a competing system.

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For the Prospect Who Wants

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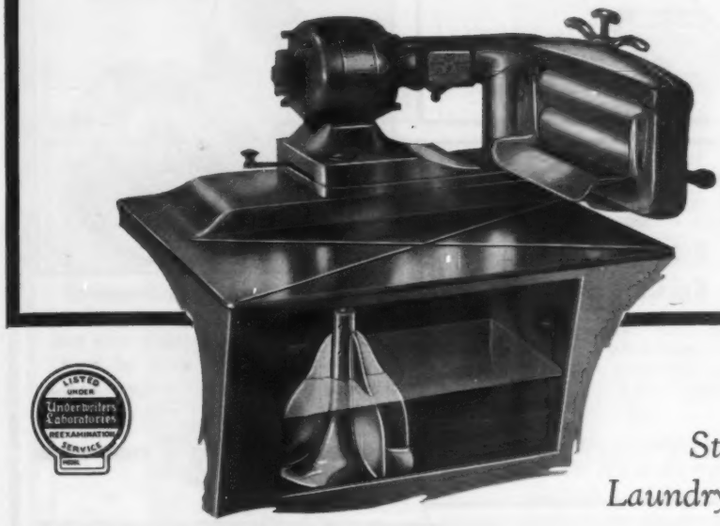

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Send for the comparison chart that has proved these points—and many others—to hundreds of customers. Customers who weren't even prospects for the conventional type of washer. They wanted more than just a washer—they wanted and bought, convenience.

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Coffin Is New President of Northwest Association

Leslie R. Coffin, vice president, Puget Sound Power & Light Co., Seattle, was elected president of the Northwest Electric Light & Power Assn. at the annual meeting of that body in Portland July 13. The meeting expressed hearty congratulations to the retiring president L. T. Merwin, vice president and general manager, Northwestern Electric Co., Portland, for bringing the association so successfully through its first year of independent operation since the dissolution of the N.E.L.A.

Other officers elected were: vice president, K. M. Robinson, Idaho Power Co., Boise; state vice presidents—for Idaho, R. B. King, Idaho Power Co., Boise; for Montana, J. C. Ryan, The Montana Power Co., Butte; for Oregon, L. A. Grettum, Eastern Oregon Light & Power Co., Baker; for Utah, George M. Gadsby, Utah Power & Light Co., Salt Lake City; for Washington, Jeff L. Alexander, Puget Sound Power & Light Co., Seattle; members at large of the executive committee, J. E. E. Royer, The Washington Water Power Co., Spokane, and A. S. Moody, General Electric Co., Portland.

Mr. Coffin announced the following appointments: Chairman of the Accounting and Business Practice Section, R. E. Brennan, Portland General Electric Co., Portland; Chairman of the Engineering and Operation Section, William S. Hill, Grays Harbor Railway & Light Co., Aberdeen; and executive secretary, Berkeley Snow. The chairman of the Business Development Section and the treasurer are yet to be appointed.

On the same day as the annual meeting, the new executive committee met and outlined plans for the coming year's activity. These plans contemplate the functioning of the three Sections along somewhat the same lines as these Sections functioned last year with committees reporting at Annual meetings to be held during the Spring of 1935.

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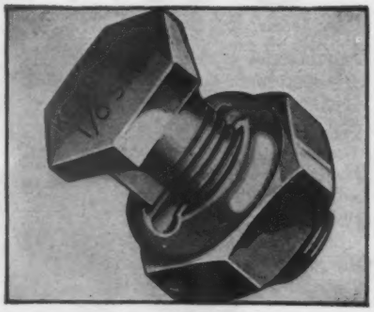

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Lapp Line Post Insulators are free from radio interference at rated operating voltages. They range from 25 kv. to 66 kv. in size.

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FACTORY DISTRIBUTORS

LOS ANGELES SAN FRANCISCO

Washington Utility Assessments Boosted

Property valuations of private utility plants in Washington have been boosted $10,247,120 by an order on file with the State Tax Commission, and county assessors have been requested to make the valuation adjustments on 1934 assessments.

The greatest single increase affected the Puget Sound Power & Light Co., whose valuation jumped $8,176,542. Other public utilities' valuations were increased as follows: Chelan Electric Co., $835,720; Inland Power & Light Co., $115,357; Interstate Power & Light Co., $21,113; Northwestern Electric Co., $142,920; Northwest Improvement Co., $11,875; Pacific Power & Light Co., $398,734; Washington Water Power Co., $541,930 and Olympic Public Service Co., $2,929. H. H. Henneford, chairman of the commission, declares "these valuations are only a beginning in correcting assessment inequalities in the state."

End of Pepco Financial Tangle Is in Sight

Holders of Pacific Northwest Public Service Co. (Portland Electric Power Co.) 6 per cent debentures has been asked to approve a reorganization plan under the provisions of the corporate reorganization act passed just prior to the adjournment of Congress. Under the original reorganization plan (EWEST March 1934, page 41; April, 1934, page 44) more than 3,000 holders of the debentures deposited $8,100,000 of them. In order to proceed under the new act it is necessary that total deposits be at least 66 2/3 per cent or $10,667,000 of the obligations affected.

In a letter to debenture holders, Franklin T. Griffith, receiver, says that the state Public Utility Commission and the Federal district court having receivership jurisdiction have approved the new plan. Should the plan become effective the 3 per cent interest payments to be made in 1934 will become payable immediately after issuance of the exchange income bonds. Also it is contemplated that the receivership would then terminate and the property restored to its management.

Northwest Accountants Discuss Taxation

Taxation, regulation, credits and collections, and prevention of energy theft, were subjects of prime interest at the annual meeting of the Accounting and Business Practice Section of the Northwest Electric Light and Power Assn. in Seattle June 25 and 26, 1934. These subjects were supplemented by discussions of routine accounting matters pertaining to classification of accounts and consumers' accounting methods. L. R. Coffin, vice president, Puget Sound Power & Light Co., Seattle, welcomed the 60 odd delegates with reference to the accountant's increasing importance brought about by the changing aspects of regulation and taxation in the Northwest states.

The problems relating to the handling of special taxes were treated in round table discussions led by F. W. Brownell, Puget Sound Power & Light Co. Winlock Miller, Jr., of the Washton Bureau of Governmental Research, Seattle, discussed the menace to the successful operation of all business contained in the tendency to pile up public debt to be liquidated through taxes.

The subject of regulation took the form of a discussion by Hance H. Clelland, attorney, Olympia, Wash., on the relationship of the accountants to valuation and rate hearings. He pointed to many ways in which accounting departments could assist in the preparation of cases before regulatory bodies to make these cases more effective.

Enthusiastic and sustained interest was aroused in the round table discussion of many problems connected with granting credit and collecting for service rendered led by George Mackenzie, Pacific Power & Light Co. A paper on the prevention of energy theft by L. D. Snow, Puget Sound Power & Light Co., brought out a discussion of methods of detection and practices used by the member companies in handling customers found diverting energy, and in correcting the companies' physical equipment to make further diversion impossible.

A comprehensive report on various practices in handling consumers accounting with a detailed discussion of the bill and register plan and with an exhibit of the forms used was presented by J. W. Malone, British Columbia Electric Railway Co. Another round table discussion bringing out viewpoints on controversial questions pertaining to the interpretation of classification of accounts was led by R. H. Jones, Utah Power & Light Co.. R. E. Brennan, Portland General Electric Co., explained the financial reorganization plan of his company involving the exchange of existing debentures for a new issue of income bonds.

O. W. Bennett, Puget Sound Power & Light Co., chairman of the Section for the past year, conducted the meeting. Under the reorganization plan of the Northwest Association the scope of this Section was broadened to cover major ecenomic problems, and business practices of utility companies in their relations with customers. This was the last of the three Section meetings held by the Northwest Association during the year ending June 30.

▼

Edison Second Quarter Earnings Increase

Gross earnings of Southern California Edison Co. for the second quarter showed an increase of 6 per cent over the same period last year according to an announcement by Harry J. Bauer, president. Net earnings available for dividends amounted to $2,606,955 as compared with $2,707,213 for the second quarter of 1933. After payment of preferred dividends this is equal to 27 per share on the 3,185,477 shares outstanding as compared with 29 cents in 1933.

Voluntary rate reductions resulted in a lower average rates per kilowatt-hour sold in 1934, gross earnings increasing only 6 per cent while electrical energy output increased more than 13 per cent over 1933. The less favorable comparison in net earnings is due to heavily increased taxes and to greater fuel consumption in the company's steam plants brought on by subnormal water conditions.

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Salt Lake Ready for A. I. E. E. Convention

Sept. 3-7 will be red letter days for the electrical engineering fraternity of the West. During those four days, the American Institute of Electrical Engineers will hold the 1934 Pacific Coast convention at Salt Lake City, the first convention assembly of any electrical group in the eleven Western states in over two years. Timed so that those attending can take advantage of Labor Day week-end for traveling and visiting scenic spots en route as well as being the ideal time of the year for vacationers who wish to spend their holiday in the mountain country, the convention attendance should be large.

The general convention committee has arranged a most attractive program which includes five technical sessions. The following outline is indicative of its broad appeal to the electrical engineers:

Monday afternoon, Sept. 3—Technical session on communication.

Tuesday morning, Sept. 4—Technical session on management and productive devices.

Wednesday morning, Sept. 5—Technical session on lightning.

Thursday morning, Sept. 6—Technical session on transmission and stability.

Friday morning, Sept. 7—Technical session on various selected subjects.

In addition to the above, student sessions will be held Tuesday and Wednesday afternoons.

Salt Lake City and the surrounding country are an ideal vacation playground. Afternoons of the convention days will be given over to scenic trips, entertainment and golf, the annual golf tournament with competition for the John B. Fisken Cup being scheduled for Thursday afternoon at the Salt Lake Country Club.

Those planning on attending the convention will have the opportunity of seeing some of the most stupendous natural wonderland in America, most of which is all within a day's drive of Salt Lake City.

Bryce, Yellowstone, and Grand Teton national parks are world famous for their brilliant scenic value. The convention committee is also planning inspection trips to Boulder Dam on Friday and Saturday, Sept. 7 and 8.

Convention headquarters will be Hotel Utah, at Salt Lake City. B. J. C. Wheatlake heads up the general convention committee, with headquarters at 1016 Continental Bank Bldg., Salt Lake City.

▼

Washington Water Power Plans New Building

Plans have been announced for the construction of a two-story annex to and the remodeling of the present four story office building of the Washington Water Power Co. in Spokane. The annex will be a reinforced concrete structure and the total cost of the new building and the remodeling will be $175,000 with work to start in the near future. Whitehouse and Price are the architects.

The new building will have a frontage of 72 ft. on Lincoln St. and will have a depth of 125 ft. A portion of the first floor will be used for the display of electrical merchandise. It is planned to have all offices contacting the public daily located on the first floors of either the new or old buildings. The major portion of the second floor of the new building will be used for an auditoium for employee meetings.

▼

Sacramento District Seeks Municipal System

With the extension of its boundaries to include the major portions of Sacramento and Placer counties, the Sacramento Municipal Utility District, originally organized to develop the Silver Creek water supply project, has started a movement to secure a municipal electrical distribution system. Directors of the district have instructed Albert E. Givan, chief engineer and general manager, to prepare an application to the California Railroad Commission for a valuation of the distribution system of the Pacific Gas and Electric Co. within the district boundaries.

At the same time he was authorized to file application with PWA for an $8,500,000 loan and grant to be used for the purchase of the private system or for the construction of competing lines.

In 1933 PWA made an allocation of a loan and grant of $11,700,000 for construction of the Silver Creek project, which was subsequently withdrawn when the district showed no inclination to proceed with the construction.

Lester S. Ready, San Francisco consulting electrical engineer, has notified the district that his services will not be available in a consulting capacity, since he has been engaged on the nationwide power survey being conducted by the Federal Power Commission.

▼

¶Because of subnormal water conditions in the Salt River Valley, the steam plant of the Central Arizona Light & Power Co., near Phoenix, has been placed in operation for the first time in a long period to augment the power supply from the Salt River Water Users' Association hydroelectric plants. During the past month the plant was changed over from oil fuel to natural gas, connection having been made with the recently completed pipeline from Tucson to Phoenix.

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Washington News

Vigorous denial of published articles to the effect that the national survey of electric rates is to be used by the Federal Power Commission to influence rate reductions was made on behalf of the commission by Vice-Chairman Basil Manly. In a statement to this writer Mr. Manly said: "The intent of Congress and the objective of this commission is to secure complete nation-wide data so that a sound, scientific basis for comparison of rates may be possible. The survey will make these data available for the first time. The commission is not charged with the duty of inquiring into the reasonableness of rates. That is the function of the state commissions. Inferences of certain published reports are without foundation."

With the advent of the new fiscal year the Federal Power Commission launched its general power survey on a broad front. Sufficient office work has been completed to send out a strong field force to make actual studies of power sites and power requirements. Careful attention is to be given that part of the inquiry which will estimate probable future demands of every important industry in the country.

▼

Power Policy

Creation of a special committee to define a national power policy has been authorized by President Roosevelt. Secretary of the Interior Ickes will be chairman, with the membership drafted from other Federal agencies having an interest in the question of power.

In a letter to Secretary Ickes the President sets forth the aim as "to develop a plan for the closer cooperation of the several factors in our electrical power supply—both public and private—whereby national policy in power matters may be unified and electricity be made more broadly available at cheaper rates to industry, to domestic and, particularly, to agricultural consumers. . . . .

"As time goes on there undoubtedly will be legislation on the subject of holding companies and for the regulation of electric current in interstate commerce. This committee should consider what lines should be followed in shaping up this legislation."

▼

Bonneville Dam Contracts Awarded

The main dam or spillway section of the Bonneville hydroelectric and navigation project on the Columbia River near Portland will be built by the Columbia Construction Co. for $8,950,000 according to a contract let early in July by the U. S. Army Engineers. This section of the project, an Ogee spillway type dam, will span the main channel of the river between Bradford Island and the Washington shore. The Columbia Construction Co. is composed of five of the six companies associated in the construction of Boulder Dam.

Bids have been opened on the contract covering the masonry work for the power house and lock to be situated across the other channel of the river between Bradford Island and the Oregon shore. Although the contract has not yet been let, the General Construction Co. and J. F. Shea were low with a bid of $3,937,000.

Controversy as to the most satisfactory method of handling the salmon runs over the dam began to take more definite form in the meeting of the Interstate Fish Conservation Committee composed of the representatives of the fish commissions of Oregon, Washington, and Idaho, the latter part of June. This committee is attempting to agree on the type of fishways that will be adequate to protect the $10,000,000 fish industry depending on the Columbia River spawning grounds. The problem is to provide a negotiable passage for the adult fish seeking the spawning grounds in the upper reaches of the river shed, and a safe passage downstream to the sea for the progeny of this annual reproductive migration. The committee is to meet later and conclude its plans to present to the Army Engineers.

▼

¶Rocky Mountain Electrical Assn. plans to hold its annual convention as usual, on Sept. 10, 11, 12, at Stanley Hotel, Estes Park, Colo., and will combine with it the Sales Rally for the industry as it has for the past two years, according to George E. Lewis, manager.

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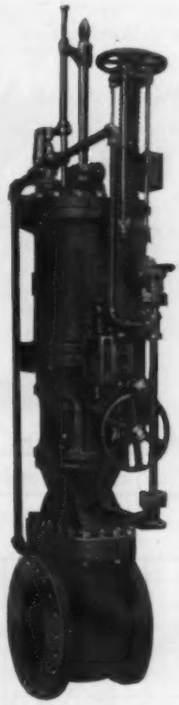

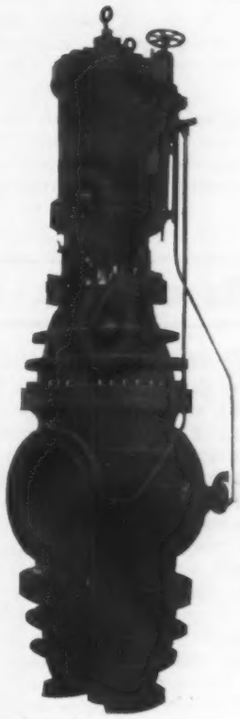

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Col. Robins Staff Moves to Portland

Colonel T. M. Robins, division engineer, United States Army, took charge of the newly created Northern Pacific Coast Division with headquarters in Portland, Ore., July 1. Colonel Robins was formerly division engineer for the entire Pacific Coast with headquarters in San Francisco, but the volume of work in the Northwest, roughly including Oregon, Washington and Alaska, made necessary the splitting of the division into a northern and southern section. Colonel Robins has established offices in the Pittock Block.

To aid him in administering the new division office, Colonel Robins brought with him from San Francisco, Captain C. P. Hardy, military assistant, Frank Kochis, civilian engineer, and A. J. McIntyre, administrative assistant.

▼

¶**Paul W. Greenleaf**, construction superintendent, Southern Sierras Power Co., recently celebrated his 25th anniversary with that company.

¶**Forrest Raymond**, superintendent of advertising, San Diego Consolidated Gas & Electric Co., was unanimously elected president of the San Diego Ad Club at the annual meeting in June. Mr. Raymond headed a strong delegation to the Portland convention and succeeded in getting the next convention of the Pacific Coast ad clubs pledged to come to San Diego.

▼

¶**E. Richard West**, member of the public relations department of the Southern California Edison Company Ltd., at Los Angeles, was elected president of the United States Junior Chamber of Commerce at the annual convention of the organization held recently at Miami, Fla. He also is president of the Los Angeles Junior Chamber of Commerce.

▼

¶**Seattle Electric Club** is planning its annual club picnic, to be held at Golden's resort, on August 25, according to picnic chairmen Grover Burke and Charles Callahan. Tacoma men of the electrical industry have also been invited as the site of the picnic lies about midway between the two cities.

F. O. McMillan Elected to National Post

F. O. McMillan, professor of electrical engineering, Oregon State College, was elected one of the five vice-presidents of the American Institute of Electrical Engineers. Professor McMillan has been actively associated with both Institute and industry problems and is nationally known for his research work in high-voltage phenomena. He will represent Western electrical engineers on the national body together with R. W. Sorensen, professor in E.E., California Institute of Technology, and R. B. Bonney, Mountain States Telephone & Telegraph Co., Denver, Colo.

J. Allen Johnson, chief electrical engineer, Buffalo, Niagara & Eastern Power Corp., newly elected national president, took office Aug. 1.

▼

¶**Newman Jones**, a member of the legal staff of the Southern Sierras Power Co. since 1912, has retired from that organization. **C. N. Perkins**, a Los Angeles attorney, has been added to the legal staff of the company.

▼ ▼ ▼

Barometer

ENERGY consumption in manufacturing plants in the Western states has since the early part of the year varied but slightly, month by month, around a level about 20 per cent higher than that of the early months of 1933. A moderate decline in May and June, however, combined with the rapid rise a year ago leaves the June average only 3 per cent above that for the some month in 1933.

A conspicuous exception is provided by the group composed of iron and steel and metal-working plants, which shows a year's gain of 36 per cent, indicative of decidedly greater activity in the production of durable goods. A similar though smaller advance was made by the stone, clay and glass group, now 12 per cent higher than it was a year ago. The figures for chemical products and paper and pulp also are higher. Rubber and forest products are on a par with 1933, though each has receded somewhat compared with April.

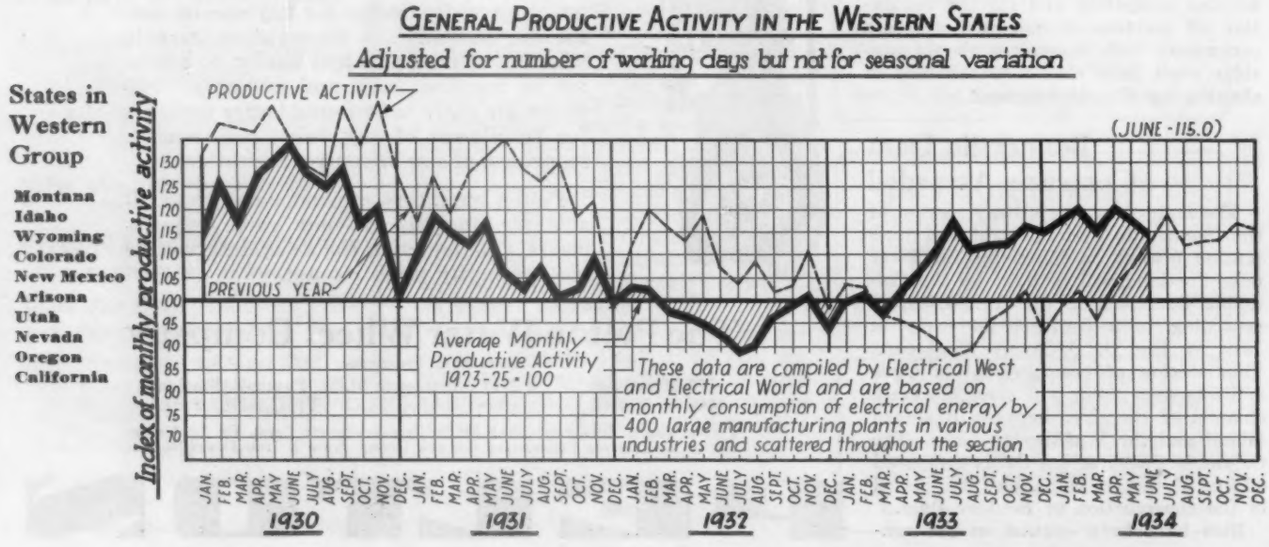
A downward movement brought the food industry 16 per cent lower than it was a year ago. Returns from shipbuilding yards show only minor changes during the past few months, and a present level 8 per cent under that of June, 1933.

Index of Manufacturing Activity in the Western States

(All figures adjusted for number of working days)

	June 1934	May 1934	April 1934	June 1933
All industry	115.0	118.4*	121.4	111.6
Chemicals	94.0	90.5	91.7	74.7
Food products	105.7	107.9*	117.3	126.0
Metals group	84.4	81.2*	78.7	62.2
Forest products	156.5	169.5	175.0	154.0
Paper and pulp	171.5	178.6	168.5	159.7
Rubber products	107.4	109.1	117.0	106.0
Shipbuilding	98.3	100.3*	95.6	107.2
Stone, clay and glass	120.4	127.2	121.2	107.8

*Revision.



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General Elec. Co.
Graybar Elec. Co., Inc.

Anchors, Guy
James R. Kearney Corp.

Appliances, Household
Apex Rotarex Mfg. Co.
Chicago Flexible Shaft Co.
Easy Washing Machine Corp.
Edison Gen. Elec. Appliance Co., Inc.
General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Lindemann & Hoverson Co., A. J.
Malleable Iron Range Co.
Mary Dowd Reardon Studios Ltd.
One Minute Washer Co.
Panama Lamp & Com'l Co.
Swartzbaugh Mfg. Co.
Westinghouse Elec. Supply Co.

Molded Material
Electrical Specialty Co. of So. Calif.
C. D. La Moree

Boxes
General Cable Corp.
General Elec. Co.
Russell & Stoll Co.
Thomas & Betts Co.

Brackets, Wood
Locust Pin Co.

Bus Fittings
Burndy Eng'g Co.
General Elec. Co.

Cable Accessories
General Cable Corp.
General Elec. Co.
John A. Roebling's Sons Co.

Cables
American Steel & Wire Co.
Columbia Steel Co.
Crucible Steel Co. of America
General Cable Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
Maydwell & Hartzell, Inc.
Providence Insulated Wire Co.
John A. Roebling's Sons Co.
Westinghouse Elec. & Mfg. Co.

Carbon Brushes
National Carbon Co., Inc.

Carbon Products
National Carbon Co., Inc.

Central Station Equipment
Tom Wood

Chimes
Square D Co., Inc.

Circuit Breakers
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Cleaners, Vacuum
Apex Rotarex Mfg. Co.
Clements Mfg. Co.
Cramer Elec. Co.

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John C. Dolph Co.
General Cable Corp.
General Elec. Co.

Condensers, Electric
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Conduit
General Elec. Co.
Steel & Tubes, Inc.
Youngstown Sheet & Tube Co.

Conduit, Underground
Fire Proof Wall Co.
Johns-Manville Corp.

Connectors
Burndy Eng'g Co.
James R. Kearney Corp.

Cutouts
James R. Kearney Corp.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Demand Control
General Elec. Co.
Wesix, Inc.

Distribution Specialties
General Elec. Co.
James R. Kearney Corp.
W. N. Matthews Corp.
Maydwell & Hartzell, Inc.
St. Louis Malleable Casting Co.
Waltham, DeWitt & Krusi

Electrodes, Arc Welding
John A. Roebling's Sons Co.
General Elec. Co.

Fans
General Elec. Co.

Farm Electrification Equipment
General Elec. Co.
Rural Elec. Products Co.

Fittings, Conduit
General Elec. Co.
Steel & Tubes, Inc.

Fixtures, Lighting
General Elec. Co.
Russell & Stoll Co.
Thomas & Betts Co.

Floodlighting
General Elec. Co.
S & M Lamp Co., Inc.

Gasoline
Union Oil Co.

Generators
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Graphite Products
National Carbon Co., Inc.

Ground Rods
Crucible Steel Co.
Maydwell & Hartzell, Inc.

Heaters, Air
Edison Gen. Elec. Appliance Co.
Montgomery Bros.
Sandoval Sales Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Edw. L. Wiegand Co.

Heaters, Water
Edison Gen. Elec. Appliance Co.
Lindemann & Hoverson Co., A. J.
Malleable Iron Range Co.
Red Spot Elec. Co.
Sandoval Sales Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Westinghouse Elec. & Mfg. Co.

Heating Element—Repair Part
Mend-It Supply Co.
Edw. L. Wiegand Co.

Illuminating Glassware
Inland Glass Works, Inc.

Instruments, Measuring
General Elec. Co.
Quality Elec. Co.
Roller-Smith Co.
Westinghouse Elec. & Mfg. Co.
Weston Elec'l Instrument Corp.

Insulation
General Elec. Co.
Johns-Manville Corp.
C. D. LaMoree

Insulators
Corning Glass Works
Graybar Elec. Co., Inc.
Hemingray Glass Co.
Illinois Elec. Porcelain Co.
Lapp Insulator Co., Inc.
Locke Insulator Corp.
McLaughlin Glass Co.
Owens-Illinois Glass Co.
Westinghouse Elec. & Mfg. Co.

Ironers
Apex Rotarex Mfg. Co.
Easy Washing Machine Corp.
General Elec. Co.
Ironite Ironer Co.
Mary Dowd Reardon Studios
Savage Distributing Co.

Lamps, Mazda
General Elec. Co.
Westinghouse Lamp Co.

Lamps, Sun
General Elec. Co.

Lighting Equipment
The Portalite Co.
Smoot-Holman Co.
Wuelker Reflector Lighting Corp.

Line Material
Maydwell & Hartzell, Inc.

Meters
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L. A. Nott
Sangamo Elec. Co.
Westinghouse Elec. & Mfg. Co.
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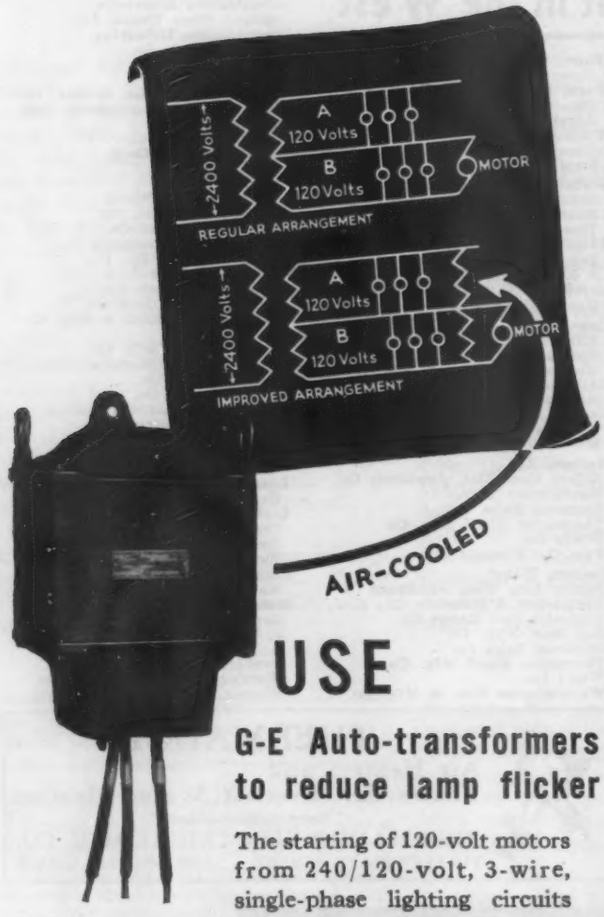

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Motor Starters
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General Elec. Co.
Ward Leonard Elec. Co.
Westinghouse Elec. & Mfg. Co.

Oil, Lubricating
Union Oil Co.

Oil, Transformer & Switch
General Elec. Co.
Union Oil Co.

Panel Boards
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Photoelectric Cells
General Elec. Co.
Weston Elec'l Instrument Corp.

Pins, Wood
Locust Pin Co.

Pole Line Hardware
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Graybar Electric Co., Inc.
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Kortick Mfg. Co.
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Bowie Switch Co.
James R. Kearney Corp.
General Elec. Co.
C. D. La Moree
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Switches, Safety
Meyers Safety Switch Co., Inc.
Mongerson's Elec'l Mach. Works.
Parker Elec'l Mfg. Corp.
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Landis & Gyr Co.
Sangamo Elec. Co.
Tork Clocks, Inc.

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Delta-Star Elec. Co.
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Westinghouse Elec. & Mfg. Co.

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General Elec. Co.

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James R. Kearney Corp.

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General Elec. Co.
Jeffries Transformer Co.
Pennsylvania Transformer Co.
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Steel & Tubes, Inc.

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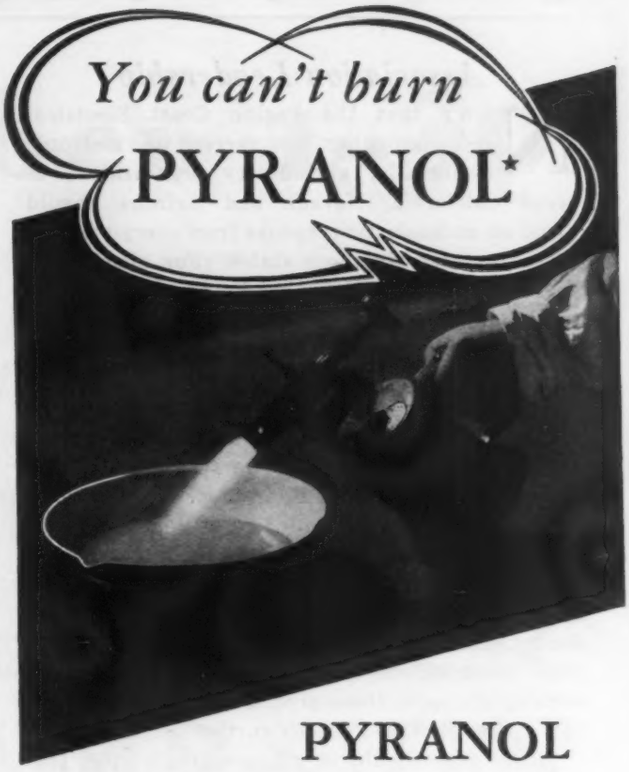

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E D I T O R I A L

Association Leadership

NEWS that the Pacific Coast Electrical Association has been revived into a strong, democratic, all-industry organization to serve California, Nevada and Arizona should bring an enthusiastic response from every member of the industry in those states. For almost two years association activity has been confined solely to the Northwest where the Northwest Electric Light and Power Association has continued to function despite depression hardships.

Seldom before in the history of the industry has the opportunity for leadership that such organizations afford been greater. The real interest displayed by executives in their present and future programs is definite assurance that this leadership will be tangible and forceful. Beset with a multitude of worrisome problems that range from hostile attacks to the vital need for selling, the industry definitely needs all of the advantages that these associations offer. Arthur Markwart admirably discusses these problems elsewhere in this issue. One, however, needs further emphasis.

Initial goal should be a mass attack upon the problem of industry morale. Loyalty and enthusiasm have sunk in direct ratio to the curve of the depression. The industry needs selling to its membership. This is a function that the associations can perform through the establishment of informational channels that have been sadly lacking, through the promotion of contacts and the interchange of ideas. With lost morale regained, the industry can face its other problems with courage and assurance.

If the associations can accomplish this one thing during the next few months, they will have proved their worth to a degree that will preclude any future period of apathy and inertia such as the P.C.E.A. underwent.

▼

Labor Muffs Its Chance

AFTER lean years during which unionism scarce had standing anywhere, along came the New Deal with a legislated new big chance for labor. With misgivings business retreated from a stand for open shop which its former experience with labor leadership had demonstrated was necessary to peace and progress. Perhaps now, it felt, labor could be trusted with the power placed in its hands. Perhaps now labor leadership would rise to the new responsibility that was twin brother to its new opportunity.

The first test came in San Francisco last month, in what manner the whole nation could scarce escape learning. Emotion, built up from years of underdog propaganda, forced the conservative leadership, itself remarkably well intentioned, to an extreme that intelligence would have foreseen was disastrous. It took the aroused public but two days to turn thumbs down on a general strike which would have crippled it in order to strike a blow at one single group of employers.

Labor lost heavily. Chiefly it lost in faith that in a crisis it can keep its head. Its great chance was muffed. Great hurt was likewise done to its friend, the New Deal that had been designed so for its benefit. These are among the costs that should have been counted before rash action was taken. Some prices are too high even for success.

▼

Building Boon

ELECTRICAL contractors, wholesalers and manufacturers see in the new National Housing Act a real stimulant to the lethargy that has afflicted the residential building field for the past five years. Three billion two hundred million dollars is the estimated amount of cash placed at the disposal of the building industry through Federal and private credit.

Mere availability of this low-cost, long-term money is of itself not sufficient to stimulate expenditures by the millions of home owners whose dwellings are in need of all types of modernization. Officials who are to administer the act admit that advertising and selling on a broad front will be necessary if the bill is to perform its function in bringing some degree of returning prosperity to the long-suffering building industry, and at the same time provide the public with needed conveniences and comforts.

In the barrage of national and local advertising that soon will be launched by the bathroom people, the paint industry, the roofing manufacturers, the cement, lumber and brick industries, how loud will be the voice of the electrical industry? National manufacturers may be expected to do their share in national advertising media. However, the real selling must be done locally, right on the ground with the home owners themselves. This is the real opportunity for some planned sales effort.

the New ELECTRICAL WEST

Established 1887

With which is consolidated "Journal of Electricity"
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by the McGraw-Hill Company of California.

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September 1-30

The
Electric Appliance Society

WASHER AND IRONER CAMPAIGN

. . . . Newspaper advertising, newspaper publicity, colorful display material—all on a larger scale than ever before. The Society has scored again in developing this smashing campaign.

The P. G. and E. will support the Society's activities with another three-point program. Bill-stickers to 523,000 of its customers; decorated floor displays in 67 of its offices—the largest showing yet of strictly dealer merchandise.

And in addition to this, the company will undertake the tremendous task of actually demonstrating ironing machines. Provision has been made to employ 61 demonstrators. Capable women to do this work are now being found and engaged for periods of from 4 to 18 days. Nearly every office in which the appliances are being displayed will be provided with a demonstrator.

Plan your tie-in program now. Be ready to go into action on September 1. Localize the force of all this splendid sales promotion and you will surely SELL THE MERCHANDISE.

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

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Want Sales Leads?

You're invited to follow up on the interested prospects who write the Bureau every month

SINCE January first, 721 people have written the Bureau for "more information" about refrigerators . . . Red Seal wiring . . . outdoor lighting . . . farm electrification . . . oil drilling and pumping . . . electric ranges . . . industrial lighting . . . school lighting . . . almost everything electrical under the sun.

Such letters come in daily from people who are almost all *live prospects* — otherwise, they wouldn't take the trouble to write. They're ready to *buy* from the first good salesman who calls. Dealers and contractors and power companies up and down the state are proving it every day.

Are you on our list?

The Bureau first answers each request, sending all information available — and then passes the name along to those who can best render further service.

Remember, these Bureau sales leads are the cream of the market. They come in as a result of Electrical Bureau advertising in home, farm, commercial and industrial fields . . . 15 publications . . . with a total circulation of more than *360,000 a month.*

How we handle inquiries

This advertising is designed to work directly for you. If your company isn't now getting Bureau-developed prospects' names, write us and you will be placed on our SALES LEADS MAILING LIST. No cost or obligation involved.

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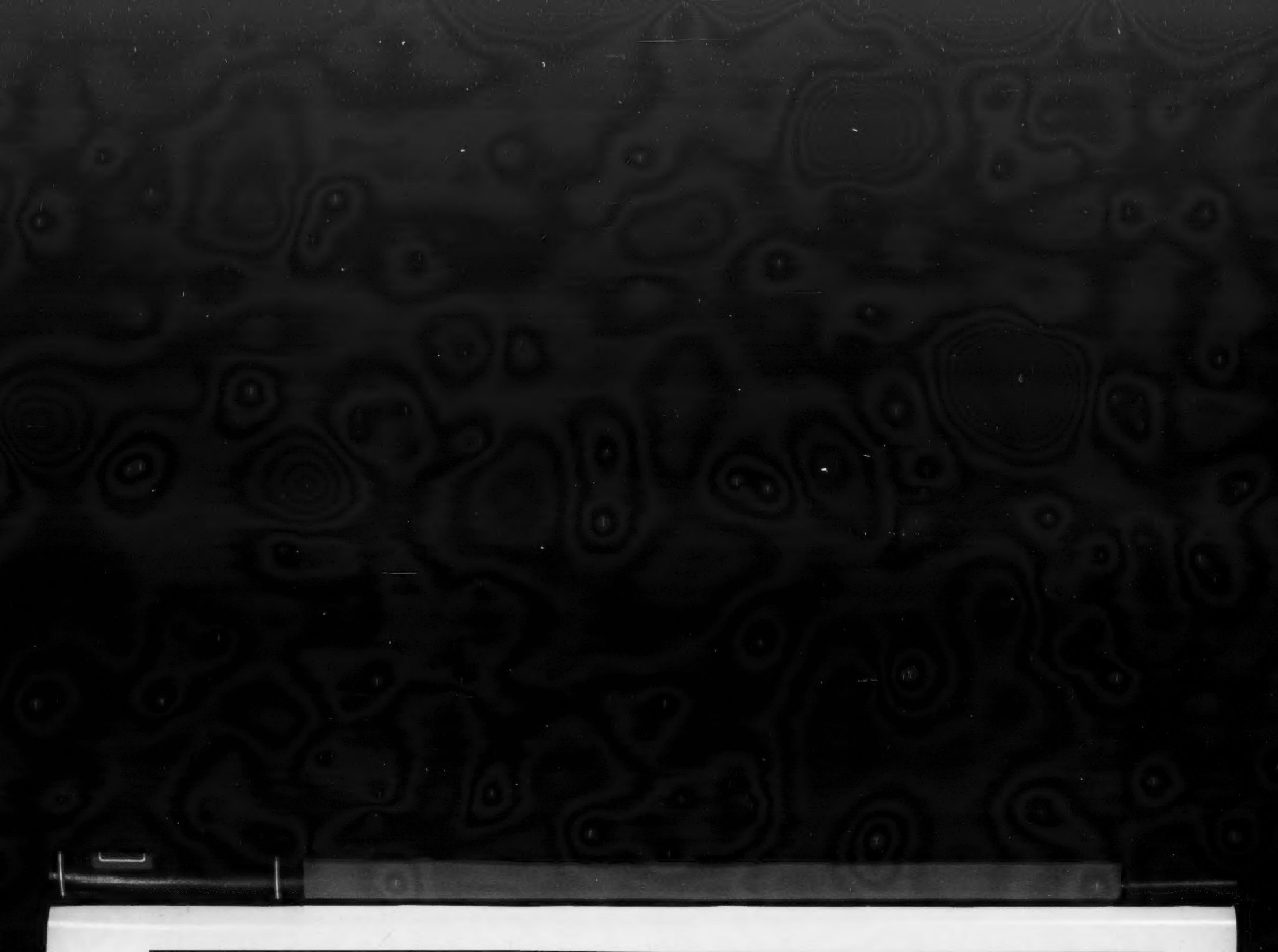
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